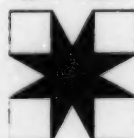




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IDRC Networks: An Ethnographic Perspective

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*This report was prepared by the Evaluation Unit at the International Development Research Centre.
It reflects the views of the authors and does not necessarily reflect the views of the Centre.*

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Acronyms

AERC	African Economics Research Consortium
AFSRN	Asian Farming Systems Research Network
AFHN	Asian Fish Health Network
AHEAD	Asian Health, Environment and Allied Data-bases Network
ATPS	African Technology Policy Studies Network
CD-ROM	compact disk read-only memory
CDS	Centro para el Desarrollo Social
CIDE	Centro de Investigacion y Desarrollo de la Educacion
CIPS	Community Information and Planning System
CODESRIA	Council for the Development of Social Science Research in Africa
DAE	Donors to African Education
EATPS	East Africa Technology Policy Studies Network
EDI/IDP	Economic Development Institute/Institutional Development Programmes
EEPSEA	Environmental Economics Program for Southeast Asia
ERNESA	Education Research Network for Eastern and Southern Africa
HDFS	Human Development and Family Studies Network
IBPGR	International Board for Plant Genetic Resources
IDRC	International Development Research Centre
IRRI	International Rice Research Institute
ITEM	Instituto del Tercer Mundo
NARESA	Network of AIDS Researchers in Eastern and Southern Africa
NGO	nongovernmental organization
NORRAG	Northern Policy Research Review and Advisory Group
ODA	official development assistance
ODA	Overseas Development Administration
PhilDHRA	Philippines Development of Human Resources in Rural Areas
PRAPACE	Regional Programme for Improvement of Potato Culture in Central and Eastern Africa
PRIA	Participatory Research in Asia
RAG	Research Advisory Group
REDUC	Red Latinoamericana de Informacion y Documentacion en Educacion
RISPAL	Latin America Animal Production Systems Network
ROCARE	Réseau Occidentale/Centrale d'Afrique pour le Recherche en Éducation
RRAG	Research Review and Advisory Group
SEARRAG	Southeast Asian Research Review and Advisory Group
SERI	Southern Education Research Initiative
SGP	small grants programmes
TQRN	Thai Qualitative Research Network
UNCED	United Nations Conference on Environment and Development
UNFPA	United Nations Family Planning Association
WEDNET	Women and Natural Resources Management Network
WHO	World Health Organization

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The substance and the tone of this review are a direct reflection of the concerns and the thinking of the many people who contributed to its conceptualization and development -- people also intimately involved with the current life and future prospects of networks. These include, in the first instance, Terry Smutylo, Director of the Evaluation Unit at IDRC who initiated the review, Marielle Rowan who played a major role in setting its direction and defining its central questions, and Fred Carden whose intellectual energy, kept it going.

They include most importantly those network coordinators and members in Asia, Africa and Latin America, the IDRC programme staff and the several donors who gave generously of their time and their ideas through often lengthy interviews. Valuable contributions were also made by the eight network researchers who provided background papers for the review, by Andrea Goldsmith who undertook an extensive analysis of IDRC networks in Africa through interviews and file review; and Michael Graham who assisted in editing the report.

The conceptual framework and principal insights emerging through the review are due in large measure to the care and openness with which all of these people collaborated in what was essentially an exploration of the motivations, processes and consequences of networking. The extent to which the final document has resulted in an analysis which proves interesting and useful is very much a consequence of the quality of their input.

Any deficiencies in the text are, of course, my own.

AKB

Foreword

Since its inception, focusing on research networks has been a distinctive IDRC feature. Many of our most notable successes have derived from such networks. We need now to move in this direction with even greater determination ... (IDRC Executive Committee of the Board, June 1995).

For 25 years, IDRC has invested funds, time and intellectual attention to the development of networks. Over the past decade, it has allocated approximately 30% of its budget to network arrangements in all sectors, within and across all regions, both alone and in association with other donors and institutions. The aim has been to foster interdisciplinary research, improve policy development, link diverse user groups, strengthen national research systems and encourage comparative analyses. IDRC's substantial experience with networks, some of which is formally documented in evaluations and staff papers, has led it to recognize that networks are an important way to organize resources for development-related research.

The viability and usefulness of networks are increasing due to wider access to improved communication and information-management technologies. Networks are prime vehicles for program delivery in times of decreasing development assistance resources because they have the potential to improve coordination, enhance information exchange, support human-resources development, and decentralize management. Their use is therefore likely to expand, not only in IDRC, but across the entire donor community. It is not easy to recognize and foster the appropriate conditions for network sustainability, nor to ensure that network resources are used efficiently and effectively. A number of concerns should be addressed as the network mechanism adapts to present and future needs.

This review explores networks that have received support from IDRC. It was impossible to conduct an exhaustive project-by-project review of the approximately 5000 Centre projects and 3500 research-support activities that have been completed to date. Instead, data were gathered in a variety of ways: **interviews** with over 50 network coordinators around the world, with Centre staff involved in the implementation of networks and with individuals in other agencies involved in supporting networks; **file reviews** of IDRC networks; **a literature review**; and **commissioned papers** on special topics.

The term network has become a catch-all for any activity that links people who share a common concern for a specific topic or issue. However, the success of any network depends on how its members relate to one another, and in turn, how they relate the network to their personal motivations, their culture and to the broader socio-political and economic contexts in which they function. Unfortunately, it is common to find networks which waste resources because they operate without ensuring that there is congruence between network goals and member expectations. Efforts must be made to allow users to realize their networking goals efficiently.

This review concentrates on the process of networking more than its structures. We talked with network members about the concept of membership and the capacity of donors to catalyze and

facilitate networks. The aim was to increase understanding of what makes networking effective, for both members and donors, as a facilitator of development.

Among the principal themes and lessons which emerged is the idea that those networks which succeed in fostering sustained social change inevitably do more than simply link discrete units; they are more than associated data-bases or Internet connections. They are social exchange arrangements. While they may use new technologies to manage and facilitate communication, at the base they involve people actively sharing and collaborating toward concrete goals. In the rush toward technology-based networks, it is important to keep in mind that the potential of these systems to improve human well-being will be realized to the extent they promote and assist joint action. Effective networks add value to individual action by providing a platform for shared experimentation and learning across sectors, geography, professions and cultures.

Another lesson relates to the variety of types of networks which exist: task-oriented and mutual-support arrangements; capacity-building, exploratory and catalytic; operational and research. While this diversity is healthy and merits encouragement, it calls for careful attention to the participants' needs, resources, goals and contexts which need to be reflected in network design, membership and modes of operation.

The review found that networks have a distinct comparative advantage: flexibility. They work well as transitional organizations capable of providing voluntary arrangements which build on or lead to more permanent development activity. They are not a substitute however for institutional development or for focused and site-specific research and development programs. As donors supporting networks, we need to attend to the potential conflicts between our needs and those of the network: not to allow our own goals, resource constraints and institutional arrangements to undermine the network's capacity to serve its constituency and to adapt to changing conditions. We also need to be sensitive to the impacts of networks on the institutions from which they draw their members. The risk of weakening capacity by drawing staff efforts into collaborative activities which do not contribute to organizational goals can be addressed through: increased contribution by local institutions; stronger communication among donors; and fuller participation by members in determining where the balances can best be made.

It is important that donors recognize the need for networks to be grounded in their contexts - that they work at the level where they are relevant and effective. International networks appear to function most effectively to promote ideas, provide technical support, coordinate policies or disseminate products. They appear less effective in carrying out projects with on-the-ground application. Local networks, on the other hand, are more conducive to project collaboration or capacity-building. Communication tends to be easier and more direct, thus facilitating shared activity with sensitivity to issues which are culturally or socially based. There is also evidence that networks at national, regional and international levels serving different goals can support and complement each other. Creative use of networking arrangements, institutional alliances and hook-ups with networks of donors and UN agencies are ways in which synergies among different levels can be promoted and risks mitigated.

Donors will always face a dilemma with respect to how best to interact with the networks they support. The message of the review is that they should nourish the relationship, maintaining contact but not control. Continual monitoring of the effects relative to the goals of the network, its member organizations and its intended beneficiaries, is important both to demonstrate commitment and to improve the quality of what is being done.

This review shows that while the costs and benefits often are not the ones intended, nonetheless, networks are sufficiently useful to attract a growing range and number of enthusiasts. Careful attention is needed, however, to ensure that networks are able to respond effectively to concomitant growth in the range and number of expectations.

Terry Smutylo
Director
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Introduction

Networking has been at the core of IDRC's mandate and philosophy from the start, operationalizing the idea that development, and the research to support it, are necessarily co-operative undertakings between North and South and South to South, among people and institutions working together to advance and utilize knowledge. Both formal and informal networking of projects and researchers through workshops, site visits, shared technical assistance and document exchange continues to grow as a mechanism of choice across all sectors of Centre activity.¹

In the past decade, networks have begun to carry an even larger role as ... *IDRC has come to see networking as indispensable in the pursuit of efficient scientific research and technology adaptation* (Smutylo and Koala 1993:232). As all-purpose mechanisms for addressing a variety of social change, institutional sustainability and budgetary imperatives, networks are being used to enable larger, higher profile programmes of research, advocacy and action, with greater administrative efficiency; to draw in multiple sources of funding and mobilize interest in new issues; and to widen opportunities for disseminating and applying research results.

Motivated by this heightened profile of networking in the Centre, the intent of this review has been to contribute to improved network practice by deepening understanding of what networks are, how they function and with what effects, from the perspective of those actively involved with them. It has resulted in a wide variety of specific, project-based descriptions of network purposes, outputs and administrative elements. It has also discovered, however, a significant consensus on the **qualitative** features of networks; those elements felt to define their most essential characteristics as *venues for social interaction* through exchange and mutual learning, based on *member-ownership and interpersonal commitment* to shared objectives and means of action, and *capable of responsive adaptation* in the face of variable local contexts.

Networks are, in the majority of cases, complex socio-political innovations aimed, in turn, at generating and delivering complex and innovative products and services in changing and often difficult environments. They are one of the mechanisms through which policies are implemented — both the formal development policies of donors and the more informal statements of common purpose of individuals or organizations who simply decide to come together. As innovations in their own right, networks function within their own "implementation environments" (Najam 1995:55), with goals, actors, contexts and processes needing to be understood and managed.

As part of such social arrangements, network members and supporters are faced with the need to establish new ways of thinking, acting and interacting to achieve specific purposes. They are presented with a new range of questions as they attempt to better understand and manage the mechanism: how to implement and evaluate its interpersonal exchange and joint learning potential; how to manage and monitor both its task and relationship elements; how to assess the adequacy with which its resources and mechanisms are tailored to both content and process goals.

¹ For examples, see Smutylo and Koala 1993; Faris 1991; Moreau 1991; Faris and Ker 1988; Glover et al. 1987.

At a slightly different level, questions concern how donors can best manage the products and resources of networks, or whether they can use the mechanism as a "strategy" while still allowing adequate internal management and flexibility. These are important questions especially in fragile research and development environments such as Africa, where the ability to reassess and negotiate change is critical. They also relate to the issue of sustainability, if one understands sustainability to include the internal capacity of organizations to monitor and constructively adapt to changing circumstances.

These are the questions the review attempts to address.

Methodology

The review has focused expressly on **interactive** research and capacity development networks, as distinct from those electronic and data exchange arrangements which are more simply concerned with facilitating the storage and movement of information. The latter have been the subject of considerable development funding over the past few years, and the commissioned paper by Ed Weber reviews the benefits and risks of these systems from a development perspective. However, the point he makes, and which the review has assumed, is that the fundamental purpose of networking is to ... *facilitate interpersonal/human connectedness, for individual and community benefit* (Weber 1995) and it is for this reason that the focus here is on those research networks concerned with enabling people to work together to generate and utilize knowledge and develop skills; networks characterized by the broad range of connective mechanisms they use and their support to direct interpersonal exchange.

The review has integrated data from several sources: 8 commissioned papers on specific aspects of networking (see summaries appendix 1); 84 interviews with network coordinators, IDRC programme staff and other donors (see list appendix 2); file reviews of 30 IDRC network projects; and a literature review (Rowan and Bernard 1993) undertaken to place the questions and issues in a wider context. Its design and methodology have been qualitative, with data collected and analyzed in terms of a series of interpretive questions: why and how networks work; for whose benefit; under what conditions; and with what effect. The review argues that **networks are more or less effective on the basis of how well they accommodate the different motivations, needs and capacities of members, donors and participating organizations; and how well they respond to their environments in doing so.**

Definitions and Purposes

Broadly speaking, IDRC-supported networks deal with products or processes in three categories: information, communication and research. They are defined generally by type, according to purpose (technology policy networks), structure (spider-web arrangements) or function (research small grants). Cross-cutting all of these, most have the more-or-less explicit intent to strengthen capacity. But such descriptions provide only a partial picture of what is happening in its networks, and why. While the effort to reach a deeper understanding of networking processes risks becoming an exercise in abstraction, the aim of the review is to be more helpful: to focus those responsible for initiating, managing, using and evaluating networks on the essential elements and necessary conditions of the mechanism, and thereby help them to improve practice. A first step in this process is to identify the defining characteristics and emerging purposes of networks.

Defining Characteristics

The challenge of matching networks to their environments is becoming increasingly complex as donors and users attempt to use the mechanism to achieve new goals and change mandates. It is, in consequence, becoming increasingly important to understand what the critical conditions and particular values of networks are, in order to ensure these are adequately considered and appropriately tailored to specific situations — and not put in jeopardy as situations change. The following characteristics seem to obtain to some extent in all networks, and are thus useful in defining the mechanism. For any one network, some characteristics will be more important than others. The networks which succeed will be those which achieve a constructive balance among them, one suited to the purposes they seek and the environments in which they function.

Networks are Social Arrangements

There was considerable agreement among informants on the value of networks as flexible arrangements for serving a range of purposes in diverse contexts. While technical linkages matter, networks are clearly more than simply this. Ultimately, as *social arrangements*, networks depend for their success and durability on members who commit to one another on a personal level for joint exchange, action and learning.

Networks are metaphors rather than clear-cut concepts. They are as old as mankind and have to do with communication, with intermediation between people so that things can happen; with doing things together. No one is self-sufficient. We all have built our networks of help in order to survive. We also have to act as go-betweens for others to survive or to do more effectively what they have to do (Cariola 1995:1).

Networks are Forums for Social Exchange

Networks are thus also *forums for social exchange*. They may be designed as information connections (e-mail, computer-linked data-bases), but their success depends on the extent to which they allow members and users to interact directly with one another, and to reconsider how they think or what they do as a consequence of this interaction. Similarly, networks are more than simply means to channel funds or deliver training to dispersed researchers. They help establish new relationships,

enabling people to share tasks in some recognizable way. Clear from all the network experiences reviewed, networks considered effective were those in which, by doing things together, members added value to what they would otherwise have done individually.

In this sense, the **process** of networking is important, including the development of a network culture in which members come to realize an awareness of themselves as part of a group, sharing a common purpose and mutual rights and responsibilities. Expressed another way, the issue is one of establishing *shared ownership*. Even when ownership was at a minimum level, with control remaining at the centre, networks defined as "working" were those where members themselves felt able to assess quality of activity, take corrective action and receive benefit.

Networks Open Opportunities

Social organization implies structures and functions, though not necessarily heavily formal ones. As mentioned above, IDRC's experience with networking reflects a broad mix. Most networks can be most easily described, in a positive sense, as *opportunistic*: either *ex post*, a number of initially separate projects linked eventually together in recognition of the complementarity or cumulative value of their work or the potential for joint training; or *a priori*, a network put together as such to enable the respective advantages of participating agents collectively to serve a wider and better end (c.f., Glover et al. 1987). Typical goals of such networks include giving research results a higher profile or level of use, and enabling cross-fertilization of expertise and/or extension of findings through comparative review. Others have been formed because the structure suits the goal. Multi-site agricultural research networks are the most evident example of these.

So, too, was a network made up of different types of NGOs in the Philippines to test application of a community learning approach to local development in different settings. Funded by IDRC in the mid-80s, the project was "packaged" as a network *using the CIPS methodology as a common participatory research technology* (Polestico 1995:11). The network mechanism enabled a level of comparative monitoring, analysis and adaptation which would not have been feasible in separate trials. By enabling ... *a broader base for the generation of ideas and action*, it also produced a highly competent community of NGOs capable of disseminating, elaborating and testing CIPS throughout the region. The network thus fostered utilization and capacity building considerably beyond the initial plans of the project, but quite consistent with a *networking process* which was managed well.

Another example of opportunistic networks are those organized as a way to reinforce other activities. Typically loose associations, these are probably more accurately described as "contact groups", but nevertheless, they can play an important role in extending the life or value of other activities without a great deal overhead cost. A WHO network manager described his use of such networks to enable geographically-dispersed participants in technology training programmes to maintain contact as they tried to operationalize their learning back home. Participants in the World Bank's EDI training programmes have recommended such linkages as a way to help consolidate and sustain their learning (English 1995b:1).

Opportunistic networks are also those with a single explicit task; the objective to produce a specific end in a time-bound and product-oriented way:

to come together, do a job and when it is over, go back. We can regroup again when there's something else to do (Latin American Information Network). These are envelope projects, with a narrow focus and a definite shelf-life. At the end of the project, the network should have produced its product or created enough momentum to move the product into use (IDRC/PO).

These are the one-off networks aimed usually at filling specific knowledge gaps in certain sector areas in a short time-frame, with details of their arrangements, membership, workplan and outputs usually determined beforehand so the associated members can "hit the ground running". Not usually intended to develop capacity, these networks begin with fairly sophisticated expertise, individuals well-grounded in specific disciplines and able to bring their expertise together quickly within fairly well-defined terms of reference. The members associate:

not because they are weak, but because they see the advantage of extending their strengths to achieve a specific task by doing so (from experience of a multidisciplinary Indian network to generate protective legislation for street children).

Interactions within these networks tend to be few and purposive: to confirm objectives, methods and roles; to ensure things are on track; to make course corrections; to confirm that outputs are produced. Long-term relations may be established through the experience, but this is not a primary intent. That said, quality of the interaction still counts in these networks if results are to be more than simply collections of individual products. Even limited networks imply mutual obligations for making and meeting deadlines, negotiating processes and assessing satisfactory closure. This, more expressly **networking**, dimension is not easily achieved, unfortunately. Confirming the literature on organizational change, the experience of one such network was that senior professionals can be among the most reluctant collaborators; the least able to make the paradigm shifts which the integrative planning and action required of such networks imply (Human Development and Family Studies Network).

Networks Strengthen Capacities

IDRC's mandate is as a development agency and thus many of its networks are concerned explicitly with *strengthening capacity*, among individuals, in institutions and within sectors. Where they work best, these networks are designed and managed with sufficiently long time-lines and consistent mandates to allow staff to identify and adapt training needs, and create learning opportunities which support and follow-up members in reasonably coherent ways. The dilemma for those who fund such networks is how best to manage the typically high costs involved and the expectations raised when their own resources are limited and their priorities in flux.

Though all small grants programmes are not networks (where all that grant recipients have in common is a mailing list), many of IDRC's capacity development networks have been formed this way. SGPs are, in simplest terms, tools for enabling delivery of small amounts of funding to a wide range of researchers to enable them to undertake punctual, short-term studies on a range of topics and at different levels of research complexity. Where they are specifically designed and managed as **networks**, they aim to add the value of interpersonal linkage. Individuals are able not

only to get funds easily, but have the opportunity to exchange with, build on and/or learn from each other.

Especially in regions such as Africa, IDRC small grants networks are often intended to serve also a broader goal of creating a "research community": enabling especially less experienced researchers to strengthen their sense of confidence, stay in touch and stay at home. These networks are intended to develop not only skills, but a sense of community and commitment among members, through joint training exercises, guided peer review, monitoring of fieldwork and cross-site exchange. In terms of sustainability, a persistent question for these networks has been the extent to which they actually can and do realize their second-order, social development, goal; or if they should try to. In the assessment of some, the multiple agenda of many of these networks risks their failing to do any task well. For others, especially in fragile environments, not trying to address a number of key goals in this kind of integrated way wastes precious opportunity. In either case, small grants networks are considered to hold considerable potential, while warranting also considerably more evaluation.

Networks Sustain Capacities

One network member in Latin America referred to the value of informal, referent-group networking as a critical means of "protecting against the abuse of our institutions" during repressive regimes. Others referred to such relationships as important in creating the enabling environment for sustaining the **potential** of more focused research and development as people wait for political and economic institutions to become again supportive of public policy research.

Less frequent globally, but an important purpose in Africa, networks also serve to fill the gap of weak institutions, both nationally and regionally. IDRC and a range of other donors over the past decade have supported a series of education research networks in East, Southern and West Africa, for example, aimed at sustaining and promoting research expertise, training new scholars and promoting policy interest in a sector where the problems and need for improvement are great, but where research, training and delivery institutions are endemically fragile. These networks have not been totally successful; the economic, social and political problems of the region generally have affected their capacity to bring in and keep good people. A critical dilemma for these networks has been that the more donors have intervened to strengthen them, the less effective they seem to have been in anchoring to local agendas, resources and long-term institutional commitment.

Part of the problem is that networks are not institutions. While a network can usefully complement an institution, it cannot substitute for the depth and continuity that a strong institution brings, and which are necessary for sustained capacity development, programme delivery and generation of policy at national and local levels. Networks mobilize interest, foster communication and break down barriers; they catalyze and associate. But these are not factors typically associated with establishing roots. Even in Africa, the emphasis on using networks to back-stop weak institutions is necessarily approached with caution. While the education networks, and others in other sectors, have given donors a reasonably flexible way to provide resources, there are continuing questions of what they have produced and whether they have also served as a rationale for **not** engaging in the less appealing institutional building which ultimately has to be done.

Networks Enable Creativity and Risk-Taking

Finally, though rarely expressed as such, a key defining purpose of networks is their ability to *create margin for risk-taking*, to provide the intellectual, emotional, professional and policy space for people and institutions to engage in new, uncertain or in some way out-of-the-norm activity without the need to commit "too far". According to a group of Asian network activists, this idea appears as the catalytic function of networks:²

providing the critical mass for moving beyond simply sharing, to be able to advocate, lobby and operationalize change. They allow cross-sectoral perspectives into the policy debate ... give protection in expressing alternatives ... provide a space within and for professionals and policy-makers to move, explore and create together, within a context of "suspended responsibilities". They're a venue to encourage lateral thinking, to develop new agendas which might eventually make it into the mainstream. They free members from institutional limitations.

Emerging Purposes

Metaphors are popular among those who write about networks, chiefly as a way to describe the distribution of information and authority: spider-webs, fishnets, branching trees, wheels. Few network planning documents actually appear to use such images, however, tending instead to more prosaic descriptions of function — co-ordinative and advisory mechanisms, selection criteria, resource flows. Building on this functional perspective, but with a somewhat more qualitative sense of purpose, the review identified several network types: emerging as particular kinds of delivery channels.

Interface Networks

Still in nascent stage, and most specifically in the NGO community, networks are beginning to form as mechanisms to enable members to seek, mobilize and improve relations with international agencies and donors. As contact points, these **interface networks** aim especially at protecting small NGOs and community groups, and at enabling funders to deal with these groups in more iterative terms than they can often do directly, providing continuity where a number of donors are involved and interpreting between often very different world views and languages. Such networks can assist donors in linking with the most appropriate partners in the most viable ways, in monitoring implementation of programmes, and in generating lessons learned across programmes.

Projective Networks

Other Centre networks, fewer in number but of increasing interest, have a long-term *projective* focus: networks conceived with a relatively broadly-stated initial "vision" of some kind and aiming to build a case for a new research agenda by providing the opportunity for independent action on the part of an indeterminate range of interests within the research and policy community. Promotion of social policy research in West Africa through networking is a good case in point. These networks seek to be cutting-edge in pursuit of new lines of enquiry, including initially a mixed range of members and

² Brought together for a Network Review Workshop in Singapore, January 1994; included academic, government and NGO networkers from Thailand, Sri Lanka, India, Bangladesh, Philippines, Malaysia and Indonesia.

disciplines with the idea that specific emphases will be decided as ideas, and the network, evolve. Such networks pursue a path which is more one of guided evolution than controlled creation:

There needs to be a vision which covers several years and you slowly build up the network, ... giving room for independent action to other parts of the research community. The new line of thinking is unexplored and could involve all disciplines eventually; there is no natural bridge at the beginning of the idea to the established network; it evolves, initially in the mind of the programme officer and a few selected researchers (IDRC/PO).

Platforms for Action

Relatively rare among IDRC networks, but found with increasing frequency among groups within civil society, loosely-coupled networks as **platforms of action** are emerging from people and groups seeking to give one another moral support, increase their expertise or achieve greater influence through voluntary association. NGOs are using such networks to create new alliances, policy spaces and ways of negotiating with both development and policy communities. Links between government and urban poverty groups in Indonesia and Thailand, and between government and the "basic sectors" in the Philippines, are examples.

Almost the whole of the Philippine NGO community is, in fact, exemplary of this approach. As programming capacity, political and social analysis skills and management sophistication increase, domestic NGOs and people's organizations in that country are creating a vast array of networking arrangements — at national and local levels; across types and sectors; with government, donors and internationally. Though with a variety of specific objectives, the overarching goal of these networks is:

to imagine a future and fashion it instead of waiting for things to happen... (This) demands the synthesis and synergy of a multitude of perspectives, to be able to create a vision... This is where networks are most useful because (they) facilitate the process of gathering people with different views and organizations with different expertise (Polestico 1995:8).

Across regions, this use of networks is beginning to be more frequent as a means to counter-balance the powerful alliances of donor and other western-based associations, promoting alternative development paradigms and new actors. Often characterized by their projective intent as described above, these alliances might comprise quite different types of organizations within a broadly-framed philosophy of development, seeking at events like UNCED and the Social Summit to move key issues of poverty, exclusion and equity onto an international stage through their force of numbers, range of representation and intensity of purpose.

While these networks can be, and often are, supported by outside donors, they are typically defined by, and depend on, a rationale and agenda of their own making, a self-selected membership, and their own internal assessment of value and success. Outside contributions are obviously important, but priority is given to protecting internal capacity for self-determination. Even where membership is quite loosely-connected, the aim is one of balancing the value of a donor's funds against the risks of

subverting local agenda to meet its demands for predictable schedules and immediately tangible results.

Non-traditional Networks

Networking within IDRC is beginning to find new focus among *non-traditional actors and groups*, including especially indigenous communities. Though experience is still limited and, as the Michaud (1995) study suggests, the value of formal networks to these groups not as immediately clear as it has been for traditional research systems, the flexibility inherent in networks is encouraging serious effort to develop viable designs with these new actors. Networks, more so than institutions, can be tailored to context; articulated to people and their institutions through light-handed and phased provision of inputs and with goals suited to capacity and need.

A good example of this type of network is one evolving among parliaments in Southern Africa. Though still relatively embryonic and operating in uncertain political environments, these parliaments are having to move quickly to establish credible and effective democratic systems even as they create legislation. With comparable mandates and problems to address, but quite different contexts, pressures and capacities with which to work, the intent is to use networking as a way to share each others' information, experience and analyses; to realize a phased or graduated subdividing of functions or activities to meet their different needs:

to be cost-effective while maximizing and pooling resources ... (the network's ability to) strengthen the institutions and their operational structures (i.e., legislative committees) across party lines may make it a less political and therefore more attractive form of legislative development (Smyth 1995:2).

By providing room to manoeuvre with limited risk, the network is intended to ... *facilitate, encourage and provide rationale for the compatibility of data-bases and systems*, enabling members "further down the road" to accept and make use of more permanent information structures for which they are not now ready.

Access Networks

Though not much has been done to date in IDRC to create networks linking development, research and business sectors, there are examples of moves in this direction. The PAN-Asia network is a loose electronic arrangement of sector, geographic and national data-bases. It is innovative in its scope and mix of members, some Centre-supported, others paying to be in. It is not a network in the sense of a social organization aimed at enabling new learning or mobilizing alternative action, but as an **access network** it could well strengthen or stimulate such associations.

Another example linking business and development is the Asian Health, Environmental and Allied Data-bases Network. Again dealing with data-bases, AHEAD joins together a select number of institutions active in environment and health research previously supported by IDRC for the purpose of helping them package, market and manage a common CD-ROM. In effect, it is a networking alignment aimed at creating a business association, ... *pooling resources toward the common objectives of moving their data-bases into wider use and improving these through the skills and*

income gained through the networking (AHEAD co-ordinator). As a project, short-term and task-oriented, it is intended as a catalyst to get a self-sustained profit-making enterprise off the ground, not at creating itself as a permanent structure.

Structures and Functions

Regardless of provenance, mandate or time-span, even the most structured network arrangements tend inevitably to be looser and more ambiguous in implementation than anticipated in initial plans. To the extent networks are associations of volunteers joined in common cause, member inclinations to act as individuals need somehow to be balanced with group agreement to cooperate. Effective networks are those which find this balance, a necessarily on-going effort complicated by the fact that even the most sophisticated network will continue to confront changes in its environment and in the ways members interpret its goals and exercise their commitment to them.

the structure of a network is dependent not only on functions but also on the individuals involved. Networks provide an infrastructure for information and services, but also a fluid channel to evolve and respond to change. They should not be formalized. Even in more formalized structures, informal networking must, and will, exist (Asian Network Workshop).

IDRC-supported networks show a fairly high degree of consistency in terms of formality of design, specificity about anticipated outcomes and requirements to account for resources used. While this reflects the natural concern of any donor for reliability in inputs and outcomes, it tends to mean limitations in how much variation is allowed. The dilemma is how best to accommodate the legitimate concerns of the donor for accountability and predictability with the flexibility and adaptability necessary to allow networks their particular value and vitality.

As multiple-site, loosely-coupled social organizations, networks function most effectively where they develop processes for creating a sense of membership, for bringing in new members and letting others go, and for establishing credibility of the work done. In other words, establishing and managing a recognizable organization, not merely a legal entity. The extent to which a network achieves these ideals is a reflection of, and will influence, two further factors critical for its functioning: coordination and leadership. These two elements overlap and interact, effective leadership being that which ensures sufficient internal cooperation to enable members to see value in acting collectively to build on what each brings to the exercise.

Member cooperation is, in the last analysis, the necessary condition of networking. Members are the implementors and champions. Leadership is important as the hub of the coordination, but it is the members who agree to be coordinated and, in a very real way, exercise leadership at their respective points in the organization. While use of a network's products is one condition of its being sustained, it rarely seems a sufficient one. More important to sustaining continuity than what the network produces for clients appears to be what it provides its members by way of personal and professional satisfaction.

Most networks tend to have different levels of membership: a core of critical agenda-setters and activists, and a periphery of user-members. The first are key as the *'spark-plugs' and leaders of the organization ... genuinely interested and persuasive, non-antagonistic, knowledgeable and respected (IDRC/PO)*. The latter are the people who belong to the network, but operate as members-at-

large, using its information and products (journals, newsletters etc), but not contributing much of their own input.

Effective coordination and leadership within networks were often defined in the interviews in terms of the ability to ... *mediate, interpret with donors, mentor for weaker members, identify resources* (Asia Fish Health Network Workshop). They are seen as effective when they **allow** (flexibility and discretionary action among members, status for members ideas), **accommodate** (different perspectives, new ideas), and **facilitate** (skills development, risk-taking, an open-exchange environment). They are also considered effective when they are strong enough to continue to persuade members of the viability of the network and the importance of belonging. Without such core capacity, especially in externally-initiated networks, *there is a tendency for everyone to by-pass the network and deal directly with the donor (IDRC/PO)*, or to use the network as a spring-board to other contacts, thereby reducing chances of its eventually functioning as a coherent entity.

The notion of levels, or "layering", is useful in thinking about good management structures in networks. Whether purposive or a matter of default, layering of management structures enables the multiple functions and agenda of networks to be addressed in "doable" chunks; allowing a variety of issues to be handled without the extensive and fixed structures of an institution. For example, the EDI/IDP networks of the World Bank provide within their design for multiple tasks and expertise:

The network partners usually form several tiers. The first includes the donors and institutions responsible for program operations, ... which share in the program's decision-making and administration. In the second tier are those institutions participating continuously to implement the program's funded regional and national activities ... The third tier includes institutions that participate occasionally and for specialized, national activities. The programs provide a way for different institutions to share each others particular expertise (English 1995a).

Most donor-initiated networks, IDRC's included, have a well-defined central coordinating mechanism of some form, a secretariat or focal agent charged with maintaining communication flow, serving as contact point for outsiders and ensuring administrative accountability. In contexts of political or member instability (the example of the parliaments network in Southern Africa), these bodies can also provide continuity, stability and "institutional memory" (Smyth 1995:4). In some cases, this function is expected to rotate among members, toward building broad member-ownership, but such democracy is time-consuming and not a high priority in all cultures. In practice, original coordinators tend to get reappointed, sometimes to the detriment of the network where it allows member commitment to wane or inhibits the kind of evolution a new leadership might bring.

Perhaps the most crucial criterion implied by the descriptions of those networks considered successful is their capacity for learning. This includes a readiness to engage, to gather information, to break down prior attitudes and practices, to experiment, to risk and to accommodate. Such learning appears important in at least two respects: in achieving content and product goals, and in creating and managing the arrangement itself. It also seems important that such learning happen at all points in the network: donor, institution and individual. Networking implies learning particular types of attitudes

and behaviours: respect for autonomy, accommodation to shared responsibility, tolerance for often high degrees of goal and role ambiguity and unpredictable futures. Networks which do not take the need for such learning into account, through provision of time, opportunities and resources for acquiring knowledge and practising skills, seem to be those which do not reach much beyond their more task-based purposes.

Conditions of Success, Causes of Failure

The review attempted to discover from network experience the key factors associated with success and failure; the conditions which appear necessary to make networks work well, and those which put them at risk. Again, the focus was on networking which either explicitly or implicitly implied a **social enterprise**, not simply a linking of discreet units. The review identified a number of conditions enabling and inhibiting such networks.

Flexible Internal Management

Networks which aim to foster relationships, strengthen capacities, mobilize joint action or catalyze initiative appear to do better where they build on social interaction. Such interaction, in turn, seems more likely to occur where network management is flexible and internally driven. Some networks bring people together in order to **perform a joint task** (e.g. fisheries and crops scientists in a network to create an agricultural innovation). Others bring people with similar concerns together to **strengthen individual effort and broaden impact** (e.g. the breastfeeding campaign in the 1980s which brought together medical people, consumers, parents and NGOs). What emerged from the review was that, whichever the principal goal, networks are stronger and ultimately more sustainable when they do some of both, i.e., create solidarity around a shared purpose, and allow members to work together on common tasks.

Networks need to have a culture of informality, to maintain a family character. If not, they risk becoming too task-oriented, not inclusive or interactive enough, not able to maintain links with the ground or to serve one another as fellow members of the network. However, at the same time, tasks and professionalism are necessary, especially when networking with groups like the government. There needs to be a balance; a family, but with a structure of professionalism (PhilDHRRA deputy-director).

Where only the second is pursued (getting the job done without creating a shared identity), the network is more likely to remain dependent on the outside initiator, usually the donor; to be less interested in members themselves mobilizing or generating resources; and to remain isolated from national contexts, allowing initial objectives (often set by the donor) to continue guiding activity rather than seeking to adapt or integrate activity with local needs and conditions.

Reinforcing this idea was the consistent reference throughout the review to what might generically be called **ownership** as the key to network sustainability. Revealed typically in members being actively engaged, ownership expresses the phenomenon of *members working within a network, not for it* (IDRC/PO); not simply performing the business of the network, but taking responsibility for ensuring that that business remain important, beneficial and well implemented:

whenever the network needs you, you have to be there; you have to keep the old members active and new ones drawn in. We have to keep generating products and doing visible and shared activities (Thai Qualitative Research Network).

Ownership was equally a criterion of concern to donors, defined as members assuming responsibility, while they as donors simultaneously "let go". Neither condition is easy:

We create a network and people in the field say it's ours; they don't take ownership of it. During the first phase of a network, IDRC is very active; very much present. But how do we go from that stage to one that is hands-off? This also leads to accountability problems. If the network is off and running on its own and a decision is made which turns out to be a failure, is IDRC responsible? (IDRC/PO)

An internal evaluation of a South Asian network similarly regretted a failure to establish ownership, in this case due to an overly *controlling philosophy ... driven by donor money*. There was no question about the quality of work, only about its ultimate sustainability and localized use; that more should have been encouraged *without the donor carrot*.

Ownership is both a condition and an outcome of a successful network; ... *the impetus must come from the prospective members themselves who see value in the network and are willing to take responsibility for it (IDRC/PO)*. While people and institutions may join a network because they expect to get something out of it, it appears they stay active when their goals, stated and/or unstated, remain coincident with those of other members and the network adds value to their own work.

You need a clear reason for being there, with enough sense of a structure to mobilize, maintain, evaluate and move forward purposively. The roots of a network are members who are committed, not just to meet, but to come and share and then go back with alternative views and strategies to mobilize these through their own influence. To use the network to fertilize ideas across the countries (SEARRAG co-ordinator).

Learning Through Diversity

Diversity of membership was a second important condition identified for network success. Diversity is usually unavoidable, of course; ... *people come into them from different backgrounds; they can be real melting-pots (IDRC/PO)*. Where handled well, such variety in experience, knowledge and interests offers the potential of considerable new learning, of accommodating new ideas and practising new skills, as differences are explored and negotiated through shared activities.

Differences can also produce conflict and undermine the collaboration and exchange fundamental to the networking exercise, however. Especially in multidisciplinary and regional networks, one of the main roles of network leadership appears to be helping members deal constructively with the negatives of differences, through building the network culture: working through tasks of clarifying and defining goals, establishing a sense of shared purpose and confirming a minimum of common values.

One complication for networks is their propensity for frequent member turnover, a changing membership which can result in useful new blood, but can also make efforts to strengthen capacity of the network rather tenuous: *the training is sometimes not carried over because people change; there are always new people, and the base of trained personnel doesn't necessarily remain available*

— so you can never stop doing training in a network (IDRC/PO). It is here that the emphasis other network reviews have put on internal monitoring systems (c.f., Smutylo and Koala 1993) has particular merit — in effect, a means of continuous in-house reflection and learning.

Creating Shared Agreement

Clear goals and limited focus are related conditions of network success. A key point, however, is that goals need not be initially set with the unambiguous clarity of a recipe. Rather, they should be sufficiently defined at the outset to be understood and agreed as a reasonable basis on which to join; and members should be explicitly encouraged to be active in their on-going articulation, evaluation and refinement. This requires mechanisms within the network, and with donors and clients, to enable reflection, dialogue and adaptation of goals to accommodate changes in the network's various external research, political or economic environments, and the gradual realization of its programme of work.

Evolving clear and focused goals is complicated for most networks by virtue of their usually **multiple** product and process aims: the tasks to be done (training delivered, research done) and the social relations to be fostered. Where a network is donor-generated, there is the added complication of that agency's agenda. The experience of one network suggests it is not always easy to achieve all ends:

(The project) failed in its goal of building a network of departments and institutions probably because of unclear goals ... to be clear that the intent was for the different institutions to come to see each other as associates; ... the project did not force us, as members, back onto ourselves to work out a different arrangement (Human Development and Family Studies Network).

Managing Change

Implied by the above, a key to the viability of any network is its ability to adapt over time to changing circumstances. Networks function to best advantage where they are not cast in stone, but encouraged to evolve. The capacity to welcome and manage change constructively is therefore an important indicator of network strength (in contrast to institutions, where stability is more critical). Charismatic leadership, counter-balanced by a proactive and engaged membership, a minimal hierarchy and a limited and flexible bureaucracy are important factors in promoting adaptation. So, too, there is a need for *tolerance for ambiguity and variability in planning and execution, to suit different members and changing contexts; letting members negotiate their own conditions across their institutional and individual divides* (Human Development Family Studies Network).

One example of management-of-change capacity in networks was reflected in the gradual shift by WEDNET/Africa, from an initial focus on the production and coordination of academic research, to translating research for community use and advocacy. It moved from researchers to NGOs as its primary constituency, an adaptation WEDNET considered essential if, as a network, it was to help sustain development (as opposed to sustaining researchers), to foster better links to communities and to enable NGOs to interpret the rhetoric of events like the Women's Conference in Beijing into the languages and concepts of those actually at risk.

Other factors related to well-managed evolution include continuity of membership, co-ordination between network and donor, development of networking tools (negotiation, communication and management skills, for example) and, framing all of this, explicit recognition of the value of managing the change process per se. The evolution of the Mollusc Culture network to one of a more inter-sectoral Coastal Resources Research network was seen, in part at least, as the combination of such factors, despite a situation of reduced resources and more restricted mandate. Over the years, the principal actors in the network remained the same and together they:

developed a more flexible approach to network membership and have been in touch with a large number of scientists in developing countries with similar interest. The main vehicle for this communication is the newsletter ... (Also) a major concern has been a working out of future directions. Through various discussions with IDRC programme officers ... during discussions at the annual programme meeting ... with other donors and institutions (Newkirk 1993:2).

Risks and Balances

Risks

The Review revealed a number of problems associated with networks and networking, leading to the conclusion that the mechanism is not without risk, for donors, members or the wider environment. Networks tend to allow for only loose control over what is happening inside them; they are difficult to monitor; they give few early warning signs of going-off-track. Those regions in which it is most critical to have well-run networks are often the very ones where irregular and erratic communications, weak institutions and limited human and infrastructure resources make the problems of networking most intractable.

The costs of networks in money, time and energy are high, especially at the front end, making any network which does not last beyond 2–3 years especially wasteful. Often to the frustration of donors and members who want quick results and clear impacts, networks need time to “take” (estimates are 5–7 years; see Smutylo and Koala 1993); to establish links with policy-makers and to generate legitimacy within the sector. Pressures put on networks to show concrete products and progress in the short-term, and decisions to withdraw support quickly where they don’t, ironically risk undermining the very capacity and impact for which they aim: *networks don’t produce much fruit in only a few years; the foundation is set and opportunities exist, but the risk is that everything will disappear if donors back out too soon. Like letting the baby go in the middle of learning to walk (IDRC/PO).*

Networks are labour intensive: ... *you must always be on them until they become actualized and working. They are an abstract kind of thing, hanging somewhere, hard to conceive, hard to get hold of. They need continuous involvement (IDRC/PO).* They are also difficult arrangements to manage: *there is a tendency for them to become ‘clubs’ — it’s difficult to bring in new members; set new directions; members and donors become fatigued (IDRC/PO).*

Networks pose risks to their sectors and research environments. Where very large resources go to a few actors or to topics selected as “key”, they can be exclusive at the expense of those people and sectors deemed marginal. Some Latin American networks spoke of problems with “cliques”: of networks acting to close-out fields of analysis and perspectives, rather than making the most of their capacity to promote collaboration across ideas and interests.

Networks also risk being too broad in focus; of concentrating too much on initial action with too little follow-through. As networks become a mechanism of choice for donors and users in addressing broader “global” agendas, there is a perception of too many networks chasing too few people and organizations and, in consequence, of spreading expertise too thinly, of using time and energy inefficiently; of failing to produce the critical mass necessary to bring about genuine and durable change. A sense of the problem was suggested in the following comment from one techno-agricultural research network in Asia:

"Hub" networks (are created) in order to transfer or diffuse the technologies they generate. Such centre-dominated networks do not always emphasize capacity building in the national system. As a result, the relationship between the centre hub and the participating (national agricultural research system) organizations are emphasized often at the expense of member-to-member linkages (Riley 1993:4).

With more networks and fewer donor dollars, there are also concerns of *networks themselves creating too much standardization; of stunting the chance of innovation and of new ideas coming out* by gearing too much to the more conservative agendas of donors and senior institutions, and too rarely challenging the status quo in research questions and power alignments (Asian Network Workshop). Increased network activity puts greater weight on member institutions. In fragile research environments, multiple network affiliations imply high levels of staff time and the need to accommodate varied agenda, *potentially distorting the capacity of these institutions to address the priorities of the country* (IDRC/PO). In Africa, where some quite successful networks are becoming institutionalized as larger, globally-focused consortia, there is concern among some member researchers that the resultant spread of resources and refocusing of priorities will be at the expense of local and weaker research systems of the Sub-Sahara (Li Pun et al. 1994:30).

Balances

While it is clear that there are risks associated with networks, an important lesson drawn from the review is that these risks can be mitigated through realizing effective balances. Networks succeed where the need for such balance is explicitly recognized and effectively negotiated. As suggested by the data, a number of issues dealing with balance are relevant to IDRC networks.

Balancing Hierarchies: International, Regional and Local Networks

Networks operate at different levels, and work differently and serve different purposes at each. Logically, but not always reflected in practice, some network goals are more effectively met at one level than the other. Advocacy networks, for example, are generally seen as best suited to broadly-based international and regional associations. Networks for developing capacity, however, function best where they associate people directly with local conditions and activities, either as locally-based networks per se, or large networks made local through a network-of-networks structure. These arrangements work by enabling frequent interaction with the field; an immediate link between learning and application. At this level, networks are more likely to build on and with local institutions and groups, and to promote integrative and interactive activities (across research-policy-practice, sectors), thus permitting more intensive human resource development.

There can be synergies between levels, of course. National networks can provide a context, anchoring generalizations drawn from regional networks and feeding lessons from practice back to policy. While such symbiosis appears to be infrequent, the recent proliferation of **network-of-networks arrangements** is a positive example of movement in this general direction, strengthening the "think globally — act locally" potential of networks.

Characterized by the co-ordinator of one such network as *the more mature and effective networks ... in terms of promoting communication and exchange*, these broad umbrella arrangements can

extend the work of existing networks; enable more tightly-focused networks and working groups to implement broader mandates of larger networks; and, in the other direction, broaden the reach of smaller networks to different sub-regions or continents. Such arrangements can provide a wider **learning and influence base**, while maintaining face-to-face iteration; **serve as brokers**, connecting groups to one another, mobilizing ideas, advocating, legitimizing or marketing for smaller networks, synthesizing and disseminating diverse experience; **promote linkages** across geography, concepts and practice, bringing together the expertise and experience of a range of perspectives on development issues, research methodologies and programme strategies; and **link** multiple **research** results with various types of **practice**. In all of these, they are becoming increasingly important in **building up national systems**.

Balancing Environments: Individuals, Institutions and Local Capacity

For a network to be effective, there has to be capacity among researchers and the theoretical and empirical strength to carry out research. Networks try to bring researchers together to address a common problem, but its success assumes a capacity in the region; that all talk the same language (African technology policy network).

An obvious condition of networking is to have sufficient numbers of people who share a common sense of purpose, an interest in working together and skills to do the work to become committed as members. But the capacity of even strong individuals to engage in and sustain a network is conditioned, in turn, by the kinds of support available to them, e.g., institutional, professional and sector systems which can provide them a minimum of recognition, legitimation and links to practice.

Thus, a symbiosis or balance seems also to be needed between members (whether institutional or individual) and their environments. Based on IDRC experiences, the development of any network seems often more influenced by its political, socio-cultural and economic environments than by the inherent merit of its task, or capacity of its members. These environments determine general institutional, research and policy capacities to sustain the network. It is, therefore, important that in rationale and design a network not *defy the very reason for (its) establishment* by failing to complement and maximize existing capacities (Smyth 1995:4).

As IDRC continues to use networks to achieve new goals, need for such balance becomes clear: to ensure that efforts to create large and predictable network outcomes do not impede necessary adaptation to local contexts. Social policy networks in Latin America, for example, have been achieving considerable success over the past decade, generating knowledge, opening new lines of analysis and linking research and policy communities, both intra- and inter-regionally. The same level and quality of effort in Africa has achieved observably less satisfying results. Differences in local capacities, level of demand for research, types of issues put forward and other development activities competing for attention — all are factors no doubt playing a part in the strategy realizing different results in the different settings.

Such differences imply the need for full and realistic assessments both of the environments in which such networks are to function, and of how in different contexts the balance between flexibility and

structure can best be managed. *A priori* environment-to-network mapping is still rarely done; there is not yet a well-developed methodology for doing it, and considerable pressure to move directly into action. One approach, however, has been to try to build such mapping into the project itself, making strategic assessments and planning the first stage of a network project. An added benefit of the approach is to foster member ownership of the arrangement, putting into the hands of members themselves responsibility for finding an appropriate "fit" with the network's various environments.

Another dimension of balancing environments concerns the appropriate unit of membership, whether it is the individual or the institution. While it is the individual who ultimately acts, of course, individuals tend to take their skills and knowledge with them as they move to new institutions or new countries. Individuals are needed to champion the innovations of networks, but without an institution as base, are less able to apply these innovations systematically over the long-term or to extend the new learning to others. To some extent, network objectives influence membership level. Knowledge generation goals can be realized through individual researchers; sustained capacity development tends to require institutions. The environment also determines focus, however. In Africa, for example, the situation is complicated by the twin facts of weak institutions and an unstable researcher base. While the priority of institutional strengthening implies networks with institutions as members, the limited number of sufficiently strong institutional candidates coupled with the urgent need for locally-based research and for keeping local researchers in the region make individual membership networks often the only, if uneasy, choice.

(AERC) has basically chosen to work with individuals in spite of the deplorable state of the institutions in which they are housed. It aims to maintain their morale and improve their skills in the hope that they will be willing to stick with their universities and that their local environment will eventually improve. Of course, this makes a contribution to the institutions, but only indirectly (English 1995a:16).

The issue is less problematic in Southeast Asia and Latin America, where institutions are generally stronger and, even in individual-based networks, links back into institutions are more common. The issue in these regions is more one of how better to engender sustained inter-institutional cooperation in the face of increasing competition for scarce resources and efforts to establish a niche.

Balancing Goals

All networks face the need to balance goals: products with process; micro with macro; those of the donor with those of members and users. Particularly for donor-funded networks, including those of IDRC, attending to social relationships in the face of demands for product deliverables appears to be the most important, though the least public, of these. Among the IDRC networks reviewed, none had been funded solely for the purposes of *having a network*. For all, concern for some form of result was paramount and networking processes tended for the most part to be seen as a way of getting the job done better, not as a major goal.

This situation is unlikely to change as budgets become tighter and results-based accountability more important. While not an unreasonable situation, it is one of some concern especially to NGO networks

which urged that more, not fewer, resources should be given to support interpersonal communication; to allow members to ... *get together whenever and with whom it makes sense to help build identity, bring in new ideas and re-energize purpose ... not just when task schedules demand it* (Asia Network Workshop).

Products and processes are interactive; actions taken to promote one can undermine or reinforce the other. One example of this concerns the allocation of resources at the outset of a network project — often high levels funding and technical input, tightly managed and targeted, to get things set up and quickly off the ground. One unintended consequence of such designs, however, is sometimes to inhibit development of strong member management by limiting the full participation of members in initial design decisions. Again, there is probably not a “best” balance. Especially in weaker research settings, the aim of strengthening local management is counterbalanced by a need for facilitated intervention:

One of the difficulties in ensuring a strong focus (to an emerging network) is that it assumes a clear understanding of what is needed, and hence a considerable investment in planning, or else leadership from individuals with extensive experience. It is also very hard to impose if a truly participatory process of planning is adopted. It might be honest to admit that IDRC's approach to networking in economic policy in Africa has included an element of benevolent dictatorship (English 1995a: 15).

In this context, especially for capacity-building networks, there is need to sustain learning through practice. Willingness of donors to provide the intellectual space and resources for members to learn to participate effectively (e.g., administrative support, on-site management and communication training, funds and time for travel) is key.

Networks are loosely-coupled systems, and interpretation of goals often varies among members, and between donor and members. While variations can create dynamic learning within networks, they can also produce tensions. A fairly common example of the latter, raised in more than one region, concerned differences over network mandate: whether it is to serve first its members, or first its clients and the wider community. From one Southeast Asian network, the problem was of members doing research to promote the visibility and funding potential of the network at the expense of research topics and methods more directly relevant to local institutions and sectors. Criticism within a South Asian network focused instead on members who declined to promote the network; who ... *saw no need to share their experience because they felt they had nothing to learn from the others ... They were willing to use the network where it suited their own needs; they weren't willing to group themselves to give (the network) and IDRC more visibility (IDRC/PO)*. A third perspective, from an African education research network, concerned members attending to their own professional needs rather than collaborating to strengthen the capacity of the network to influence policy.

A final issue of goal balance concerns the perception of some networks that there is increasing pressure from funding agencies to work at a macro level, at the expense of the micro:

forcing people in networks to take the macro level too seriously. The micro level is getting neglected, when really the main objective of networking is to improve impact at the micro

level ... you remove the ultimate motive of networking ... Especially more senior researchers are feeling forced to do work at this international or policy level, rather than at the grassroots; they can't work with local groups and organizations on local problems and also do research at this higher level. More are thinking of abandoning this level and going back ... the opportunity costs are very high (Asian Network Workshop).

There are not right, wrong or fixed answers to any of these issues. Experience collected by the review indicates it is a matter of making a reasonable match between members and goals at the outset, and then of continuing to negotiate that match as network priorities and workplans evolve:

to harmonize tensions by making effective use of the network's potential comparative advantage of up and down linkages. There are different tasks for different levels, advocacy at the top and application through the base. Individuals can shift around inside the context of the network, different people do different things to meet different needs, while the network maintains an overall coherence and shared benefits (Asia Network Workshop).

Balancing Needs: Donors, Members and Related Institutions

Donors see and use networks as mechanisms through which to foster their own agendas; to produce specific goals within specific schedules and budgets. Evidence suggests networks work best where donors consciously apply a light and facilitative hand; ... *a key issue is to engage in co-ordination without attempting to control the priorities, activities or functioning of individual members* (Tandon 1995:19). The review also indicated that this criterion is best met where the risk for the donor is least: where goals are clear and agreed; where local technical and managerial resources are available; where other donors are involved; where tasks are not overly complex and the number of actors involved is limited. The higher the donor's perception of risk on any of these, the more controls it tends to apply.

Again, the experience of IDRC's networks suggests that such risks can be mitigated; conditions need not be perfect at the outset. "Good" networks appear to be those which **manage** their development by establishing systems for clarifying goals and roles and ensuring that rights and obligations of membership are realized; and where the donor is a **responsive partner**, ensuring that the benefits of creating the new knowledge and practising the networking relationships are realized locally.

One potentially contentious issue for IDRC networks in this respect, especially given pressures toward donor-based "secretariat" management, is how and where to house coordination; to locate it in a member institution or in IDRC itself.

Networks set within the donor agency can be a no-option decision, in cases of weak local institutions, inter-institutional rivalry or economic/political instability. From a positive side, there are obvious benefits in such arrangements: in-place infrastructure and, in the case of multi-donor networks, the potential of management fees for the donor-host. But such close donor involvement in a network was seen generally as problematic in the long run. Costs tend to be higher because of the more sophisticated administrative and technical standards of donors, making it more difficult to sustain the activity or eventually to localize it. Few local institutions can expect to play or pay an equivalent role. Such networks rarely lose the initial colouration of the donor who begins them, and eventual

ownership by network members seems often poorly achieved, despite member-based advisory or steering committees; ... *it's difficult for the members to instigate new directions* (IDRC/PO). Local network staff working in the donor's office can suffer the professional dislocation of being neither independent from, nor part of, the institution. And then there is the more "optic" problem of the donor being perceived as a competitor to local institutions.

Where possible, housing network coordination in one of the member institutions is seen as preferable, under certain conditions. For example, that the network agenda is mutually agreed among all members; that the host institution as a whole is implicated in the activity and ... *feels the job is important for its (own) work* (Oil Seeds Network/East Africa); and that adequate support is given for professional support and membership co-ordination (resources donors and hosts often underestimate in network planning). It is also important that housing the network results in broader institutional gains for the host; that it is not being overwhelmed by adding yet another project activity, but is realizing effective synergies from it.

A last dimension of the donor-network relationship is that of **donor networks** as such. It is one becoming increasingly important as ODA budgets become more constrained, the "field" overwhelmed with intervention activities, and the need to facilitate connections among development problems better acknowledged. IDRC has confirmed its own interest in donor networks as official policy, and network-cum-secretariat arrangements are likely to continue as strategies of choice: relatively large, self-managed and focused on integrating across sectors through multiple training, research support and information exchange facilities.

Potential benefits to such associations are already being realized: better focusing and critical massing of resources; less cross-purpose projects or carving-up and undermining of national capacities. Where well designed and managed, these networks can be as targeted, iterative and resource-rich as needed to achieve evolving donor goals. Administrative and technical support structures, often in the form of local advisory or steering committees, can serve to free donors from substantive decisions for which they may not be competent, but over which they can still exercise accountability.

But there are also perceptions of risk as donors focus increasingly on each others' agendas: of overwhelming local priorities with Northern or single-issue causes; of excluding alternate voices, especially of marginalized groups, as Northern interests "choose the winners"; and of limiting options among development priorities, strategies, perspectives and actors. All of this is of special concern for the more developmentally vulnerable communities and research systems, of course. The more attention donor agencies give to negotiating needs, goals and mechanisms among themselves, the less inclination they may have for tailoring networks to variable and complex local conditions, or to recognizing problems and making necessary corrective adaptations through the implementation process.

Data from the review already suggest a correlation between multi-donor networks and diminishing tolerance for the idiosyncratic. There appears to be greater priority given to rationalized or "objective" criteria, quantifiable indicators and universal (i.e., western) research models, with concomitantly greater use of outside expertise; and less to the peer review, member-based

management, formative evaluation and qualitative measures which become at once both more important, and yet more difficult, to do in these contexts.

Realizing the Benefits

If networks have risks and costs for all concerned, equally they have benefits. These are not always the benefits intended or equally valued by donors and members. Often, they are long in coming and difficult to track, making performance accountability uncertain. Expressions of benefit are also often anecdotal, based on the perceptions and particular situations of the people involved, making replication of any one model difficult. That said, the value derived from networks are no less germane for being unintended and particular, and the review suggests the benefits are both real and important for both members and donors.

The main findings from a formal evaluation of agricultural networks in five African countries (Li Pun et al. 1994:2) provide a fairly generic sense of values attributed to the mechanism across all sectors and regions: ... *(to) break the sense of isolation ... provide access to information and exchange of experiences ... contribute to the strengthening of ... research and the finding of alternatives for the improvement of productivity.* Networks enable the accelerated, more comprehensive, development of new knowledge and the mobilizing of new issues onto the "public map"; ... *the benefits of new paradigms or insights are high because you have to learn to speak a new language through collaboration* (Human Development Family Studies Network). Especially where senior people are involved, networking helps move messages through an array of institutions and adjacent networks. It can promote cross-fertilization, a spilling-over of ideas across sites and sectors, and creative ways of addressing them.

Again based on review data from across the regions, networks facilitate career advancements, through contacts made with funders as well as through the training provided through small grants networks and inter-institutional exchange. *Without people feeling they are strangers, the exchange is mutual rather than one way. They know that tomorrow their people will be used somewhere else* (ERNESA Network). They enable lasting and cumulative professional connections. They also reduce duplication of research effort and, simultaneously, expand opportunities to engage in research activity, providing more people more chances to learn from others' mistakes and successes, and to build these lessons into what they then can test with greater efficacy on their own.

In the experience of a national language network in West Africa, one which has suffered many of the "downsides" of networks described earlier for that region, networking still plays a key role in cross-national and cross-sectoral exchange and advocacy, crucial roles in complex and politically sensitive areas such as this:

Issues of language are delicate and strategic. Outside support is crucial in the eyes of the government, so we look for this kind of support, this outside confirmation, in addition to the necessity of the funding. The network has given us access to new expertise in the region and in Canada; during crises (riots and budget cuts), it has allowed keeping the people and the analyses together. Because it is not highly centralized, it has allowed sharing, while still paying attention to national differences, bottom-up and top-down.

From the same region, an IDRC/PO saw as a critical benefit of networks their capacity for *effets d'entraînement*, of pulling weaker institutions along into the main stream. It was a strength of networking felt to be under-recognized, however, and at particular risk from the larger, more sophisticated networks aimed at producing dramatic impacts sellable to donors. A related benefit, and one unlikely to disappear, is the "capacity-halo" a network can create: ... *the 100s being reached (in addition to) the research results, which are in themselves often of less interest ... members' knowledge of the country and region improves, teaching improves, and so there are better students, stronger civil servants.* Similarly, for Fish Health Network members in Asia, the network was ... *the opportunity to share information; (a) context of cooperation ... where members ... participated with few opportunity costs.*

The value-added of networks is especially clear for NGOs, community organizations and fragile research systems. As the range and complexity of prospective client communities and issues to be served grow, networks are providing flexibility without loss of focus or mandate; enabling people to draw on ideas and resources well beyond actual structures and resources. In the experience of a long-time network activist in the Philippines, networking allows NGOs to *synthesize learning and share intellectual resources, skills and contacts.* It allows them to back-stop and broker smaller or less well-known NGOs, serving as something of a guarantor for them to donors uncertain about their carrying capacity. Networking provides an ... *economy of scale for tools and strategies; everyone doesn't have to repeat the same mistakes.*

In this sense, networks provide two closely related benefits for the more vulnerable sectors of civil society and research communities: a greater **absorptive capacity** for funds, ideas and new learning; and as suggested elsewhere, a greater **margin** for experimentation and risk-taking. A network can provide the weight of numbers and range of perspectives necessary to produce a louder voice in the policy forum — thus creating a capacity to work in constructive ways and on a more equal footing with existing power structures. UNCED, for some, provided a good case in point:

As the issues are becoming more complex and the discussions more complex between North and South, networks help us to manage the tension ... to work with governments and not be co-opted ... What is good for the funder is that the networking is allowing what you've been investing in to pay off. You couldn't really pin the relationship among research, development and policy-making before, but now with the sort of networking that happened at Rio, that investment has paid off ... your researchers were involved and politicians had less reign; there were fewer whimsical decisions made because there was a wide scientific community (there) which knew the subject. The conversations were less political conveniences; politicians had to answer to the strength of knowledge lying behind the NGOs. This is an exciting trend that is coming together: networks allow a certain level of synthesis which would not otherwise be possible (Asian Network Workshop).

Conclusions

Implementation research makes a number of critical contributions to our understanding of networks as social and organizational phenomena. Two of these essentially confirm the obvious: the inherently messy nature of implementation environments, ... *multiple, shifting and difficult to predict* (Warwick 1982:182); and the critical role of individuals in determining whether and how policies or innovations are implemented through their decisions to engage with, ignore or modify them — thus, that ... *implementation discretion is universal and inevitable* (Warwick 1982:183). These are also the principal lessons learned from the network review.

As socio-political arrangements, networks work most effectively where they: (a) engender mutual agreement among members as to the value of collaborating toward shared goals; and (b) provide the support for such collaboration in the face of complex and unpredictable environments. They are effective where they enable all those members, users and donors, who need to commit to the network to make it work to participate in the ... *complex assembly job (of) fitting together (their) different interests and priorities* (Fudge and Barrett in Najam 1995:13).

A further concept introduced by the implementation literature is that of *adoption motivation* — the reasons why people decide to engage with a new idea or activity in the first place (Berman and McLaughlin:1976). Opportunistic motivation — responding to authoritative decree, to available resources, to a chance to escape from failing institutions or professional isolation — may be sufficient to initiate participation, but is unlikely to sustain it. On the other hand, ... *a "problem-solving" adoption motivation, derived from a genuine appreciation of the necessity for change, is more likely to lead to a sustained, even if altered, implementation* (Armstrong 1995:8).

Networks begun as a consequence of pull, therefore — toward realizing a defined goal, filling a recognized gap or simply perceiving a value in coming together — are more likely to persist. Positive reasons for networking, coupled with gains realized from it, will be what keeps members making the efforts required to engage.

Intimately linked to this, it not surprisingly follows that successful networks are successful where they are learning organizations. Effective networks act not simply on the basis of *optimizing within constraints* (Metcalf in Armstrong 1995:27) by attempting to force-fit predicted, linear and regulated programmes of work onto dynamic policy and client communities. Rather, they hone capacities and create mechanisms for the regular feedback and reflected analyses which are needed to deal with the ambiguity of these environments, and to adapt interactively with them.

Understanding networking from such perspectives perhaps helps to explain why those which come together from the ground-up, on the basis of compatible interests and activities, and those externally-driven networks which maintain solid anchors in local communities, tend to be the most sustainable and have the greatest impact. Following the logic of implementation, these are the arrangements which allow space for the "street-level" actor, the "bureaucratic entrepreneur". They provide those who are ultimately responsible for action the opportunity to stand back from the demands of immediate experience, to analyze it and to adapt better strategies for managing it.

These are also the network arrangements most likely to encourage in leaders and members the kinds of risk-taking behaviours research indicates as necessary to implementing the policy, programme and methodological innovations typical of networks. As themselves innovations in loosely-coupled, multi-stakeholder collaborative systems (especially so where they are LDC-based development and research networks), lessons from implementation analysis suggest that networks are most effectively managed where they "plan for unpredictability"; when they attempt to *reconceptualize*:

where boundaries and standards should be, rather than (to measure) mechanical achievement of existing standards. It means that management takes responsibility for the overall performance of a system of policy [or innovation] negotiation rather than for the success of individual activities. Failure is less of a risk ... if policy making is seen as a series of experiments, where occasional failures are an acceptable fact if they are accompanied by reflective learning (Armstrong 1995:28).

Networks which fail to account for, compensate and make effective use of the constraining and facilitative elements of their internal institutional conditions and their external environments are likely to suffer accordingly, less able to achieve optimum benefit and longevity, or to contribute to the broader development goals of the sectors and populations they are intended to serve. Thus, while networks might enable individuals and institutions to "leap frog" weak national systems through links with outside expertise and resources, Hicks sounds a useful note of caution on the need for congruence between the techniques of networking (international conferences, researcher exchanges and collaborations) and the contexts from which they spring ... *to better understand scientific communication patterns in developing countries ... in terms of need, utilization and impact (Hicks 1995:2,3).*

An implementation analysis of networks as social innovations reconfirms the importance of their being able to adapt; to reformulate statements of purpose and means of action in ways which enable increasingly better accommodation with complex and continually changing (or perhaps simply better understood) environments. Adaptation, as distinct from simple adoption or co-optation, implies that both the innovation and the environment change as a result of the interaction. It is this mutuality of adaptation which is perhaps most central to assessing the sustainability of a network: is it able to adjust to, and introduce permanent change within, the conditions of knowledge and/or action it is intended to address?

Sustainability, however, is an especially tricky concept to apply in the context of networks, the comparative advantage of which is their mutability: minimal structures, voluntary membership and flexible agenda. The uncertainty created by budget constraints and donor hesitancy to make long-term commitments is making the goal of sustained networks an ever more tenuous one. But more serious, perhaps, is the fact that networks are not always clear about what they expect to sustain: the production of product, the maintenance of a user base, the relationship among original members, the association as an organization.

Generally, the intended "ends" of networks are less than clear-cut, a mix of perhaps only partially articulated product and process objectives and assumptions. Such ambiguity is a common feature of

innovation, a feature implementation research suggests can be useful where there is "just enough" clarity to allow people of quite different motivations to buy-in. But goal ambiguity needs eventually to be worked through during the course of implementing any policy or organizational change, and especially so in networks where a specific obligation of members is to act, at least to some degree, in concert.

Sustaining a network concerns its institutionalization, not as a concrete or permanent structure, but in North's sense of a *form of constraint that human beings devise to shape human interaction* (North quoted in Armstrong 1995:16). Even the loosest network, where it defines how members will behave toward one another and in respect of shared objectives, creates an institution. As these agreements on conduct and purpose alter over time, in response to changes in external circumstances and internal growth, the institution of the network will evolve. The capacity to guide this evolution in constructive, positive ways, is a crucial factor of successful implementation — even if what is eventually sustained is an adaptation of the initial intent.

Adaptive evolution may mean a network does become transformed, however; on its own, or in conjunction with others, reconceived with a more formal structure as members and donors attempt to create capacity for longer-term influence, more predictable activity and more efficient use of resources. Such evolutions tend to move networks away from those features of flexibility and voluntarism which define them as networks, of course; they can also produce a corollary tendency toward fracturing: of sub-groups forming new networks as a way to maintain either specific goals or simply the process of networking. Implementation analysis would say that these are not necessarily failures of the innovation; simply appropriate adaptations. The issue for donors, clients and supporting coalitions is to determine what degree of movement away from initial goals is acceptable and whether and to which of the resulting bodies to focus continuing support.

Implementation research provides a valuable reference for addressing the critical question of network evaluation. It helps to understand the need not only to measure products, but to assess how effectively the process of managing — separately and together — the various issues of context, content and goals, mechanisms and actors is being realized.

In this context, network evaluation is most effective where it deals with a range of networking process indicators: of its effectiveness in aligning with existing institutions, reflecting on and adapting agenda in systematic and systemic ways, and rejuvenating through new and new types of members; of its progress in clarifying and maintaining agreement on network rationale and culture; of its improvements in applying services and products within user communities; of its broadening bases of funding support and capacities to cost-share with donors.

Such evaluation is also time-sensitive, accounting for the different **phases** of a network's development; of its "growth curves" as an organization. Monitoring mechanisms built on iterative partnerships and flexible procedures are key in such contexts where all needs cannot be fully predicted or safety measures arranged at the outset; where opportunities and problems need to be recognized and dealt with as they arise.

Networks are peopled by volunteers. Critical issues for evaluation are whether and how members are deciding and continuing to participate; whether they are committing to the initiative or ignoring it. *People support a network because they get something out of it; they vote with their feet* (African Oilseeds Network). *Is there evidence of horizontal, member-member exchange, with and without using project money for doing so? Do members take initiative in instigating communication? These are positive signs that something will be sustained in the relationship* (IDRC/PO).

Networks depend on shared agenda setting and management. Does the network "network", or does it act simply as a set of linked components? *You have to watch for things like infighting or passivity, either of which may indicate loss of the associative core of the network* (Asian Network Workshop).

Networks generate and share information. Is there enough exchange of knowledge, skills and experience among members and their external constituencies to sustain creativity and rejuvenation of the linkage?

Networks have tasks; they provide services and produce products. One difficulty in this is their tendency to have long-term and not easily controlled goals, ones often realized not as end products, but as movements toward improved situations: better agricultural practices, better use of technologies, better local management, better communication among and between policy and research communities. These are goals neither the network nor its donors may be able to identify or assess using standard project-outcome measures:

We need to ask do we build capacity of our members and ourselves: do we do more and better work with communities in helping them sustain themselves; do we produce better development tools and models to facilitate processes of change and empowerment; does our advocacy have effect? What donors need to look for in networks is that they are living things; that there are signs of their evolution, adaptation over time, of their continuing to test new approaches; of strategic planning and documentation of issues and lessons learned; of there being a clear and adapting concept of co-ordination among members and for drawing in new members; of whether there is a stronger capacity to challenge the donor in purposes, nature and types of funding and content requirements (PhilDHRRA deputy-director).

Again following the lessons of implementation theory, it is ultimately the members and users of a network, those responsible for carrying out the innovation and reinventing it as it proceeds through use, who will decide whether it is sufficiently "successful" to continue. Evaluation of progress against all goals is most effective where it is internal:

Like families, or communities, networks may not fail as such, but fail to live up to some externally imposed criteria of what success means. If the network as a social group sees itself as having merit or use, should not outsiders, including donors, accept this as good enough reason for support — if it is networks and not their products which are the rationale of that support? (Asian Network Workshop).

The more evaluation is made explicit as a function of membership, the more likely it is that iterative planning and adaptive execution will happen. For networks, the willingness of members (or clients) to help define direction, monitor and adjust operations and interpret the success of tasks constitutes *ownership*, another condition identified as critical to successful implementation of social innovation.

Futures

From both donor and member perspectives, from both formal and civil society/NGO sectors, the common message from the review is that networks and networking are increasing in significance — as means of advocating, facilitating and rationalizing (making more cost effective) the development agenda. Especially for civil society and the informal sector, networks are anticipated to become the tool of choice for both instigating and managing the changes which better reflect their needs:

Networks should be the human response to dealing with globalization ... the concept of network-of-networks reflects the ideas of people reaching out to one another. The boundaries of networks can change as the expression of relationships, of people's global interaction, change (Asian Network Workshop).

But networks are also seen by those holding the power as potentially valuable mechanisms to improve their own efforts toward reflected exchange:

for policy-makers, like everyone else, networking is a way to sit down and think about where we're going — in the right direction? too fast? are our children being sacrificed for rapid economic development? Networks should and can allow for informal interaction to give policy-makers the time and opportunity to reflect for their own countries and across the region (SEARRAG co-ordinator).

In a similar manner, networking is becoming the mechanism of choice for donors and others as a way to explore new research and policy issues and linkages. Putting policy-makers and researchers together in a common activity, or cross-linking researchers from diverse disciplines, are seen as forms of "forced sorting", to generate lateral thinking and cross-fertilized practice.

Whether the assumptions underlying this use of networks are valid is yet to be systematically tested. There are indications that it is not as easy or straightforward as it seems, however, especially where motivation is from the outside or top-down without necessarily mechanisms or readiness on the ground to recognize the need and value of the network, to adapt the concepts to local contexts or to test the ideas through facilitated practice. These are the types of support which networks can provide, but only if consciously planned and appropriately resourced this way. It implies tolerance for ambiguity and for adaptive evolution, for long time-horizons and for flexible budgets, characteristics likely to be less available in future ODA environments.

Resources for networking need to be broadly and locally based if the mechanism is to serve these wider functions, of course. Even NGOs recognize that while donor investments will continue to be necessary, they will always be far from sufficient. Nor are they necessarily appropriate in developmental terms as the only, or even main, resource base for setting and managing network agendas and directing their evolution. Local responsibility for creating and sustaining networks is recognized as critical to how and to what end networks function. National networks linking research with policy and practice in ways adaptable and acceptable to local needs are likely to become more

numerous, replacing broadly-based global or regional arrangements because ... *international networks are ultimately dependent on these "sous-reseaux" being strong (IDRC/PO).*

The most serious concerns about, but need for, network support remains Africa and its still significant problems of weak institutional infrastructures, inter-institutional distrust, limited mechanisms for or interest in open exchange of information and co-operative use of resources. Unfortunately, it is a context which tends to reinforce donor inclinations to design their own structures, often more in conjunction with each other's concerns than with those of the field. Networks here require more extensive commitment of resources and time; and to be managed expressly as capacity-development activities linked creatively to programme, policy and institutional "windows". It is important that small grants networks be transparent, committee-based and "trackable" in selection of awardees; that they explicitly link their grants to local issues and institutions, avoiding control by a few; that they provide opportunities for local management and move systematically to building local ties; *as soon as a network can begin to stand on its own, it should affiliate with an African organization. There should be "phasing" in a network: first, a few donors; then more multiple, diversified funding; then government support, including getting civil servants involved in steering committees to get them to understand it is for Africa, not the donors (Science and Technology Policy Network).*

In Latin America and Asia, on the other hand, the recommendation was primarily toward identifying and supporting embryonic and existing network arrangements; for concentrating on individuals rather than institutions as the units of networks (institutions can be "brought along" later); and for helping to catalyze and promote "readiness" for networking between research and policy sectors — *we should avoid creating big organizations around us for doing it (IDRC/PO).*

One potentially problematic trend with respect to the micro-macro dimension of networks is what some perceive as a growing pressure by donors on developing country institutions to network beyond their means: to serve as nodes for associations which the donors wish to see promoted, but for which they are unwilling to pay. Often under the rubric of encouraging local partnership and buy-in, donors are asking institutions to take on more of the load.

They are asking that we become more skilled and interested in hosting networks. The request is for contributions of services, ideas, data, linkages. While we agree with the goal, the problems is that this is costly in time and money; the level of commitment required from us is high. Not just our time, but opportunity costs of not doing our other work; and costs to our institutions and colleagues (Thai university-based networker).

At the same time, the importance of balance must be noted, as donors are also encouraged not only to react to the demands of the field in thinking about whether and what networks to support, but to be proactive in mobilizing new perspectives and people. *Donors are often in a privileged position to know what the emerging issues are globally, and so should act as catalysts and margin providers; ... initiate networks which will introduce researchers and policy-makers to new ideas, provide the resources which will help them move into new fields (Asia Network Workshop).*

At any level, however, networks seem likely to continue as crucial means for acting against marginalization and exclusion; for ensuring that the less powerful are not denied access to new ideas

or to the fora for expressing and acting on them. Networks constitute a double-edged sword in this respect, of course. By definition they tend to be exclusionary, linking people in order to develop a shared agenda or to assemble those who already have one, and leaving aside those who don't fit. Network-of-networks arrangements are seen as mitigating this risk, however. Linkages among non-traditional groups (indigenous communities, subsistence farmers, parliamentarians) are now accepted as a necessary extension to donor network support, and are becoming more common. Less clear is how best to support such groups, groups which do not find easy accommodation with those international languages, world views, approaches to shared communication and action which academics and even many NGOs have been able to share with donors. Learning curves for indigenous networks are likely to be steeper for both donors and members, with the onus for making accommodations necessarily on the former for both moral and pragmatic reasons.

The donor's role in supporting networks is likely to become increasingly one of catalyzing, seeding and providing the extra margin for manoeuvre. To the extent donors continue to start networks for their own agenda, however, they will need to give more attention to the nature of the collaboration and especially to the impact of their multi-donor arrangements on indigenous ownership and capacity development.

With declining funds and increasing aid-fatigue, it is anticipated that donors will continue to give greater attention to their own networking, to promoting their own identities and the legitimacy of their own agenda through building linkages. IDRC is a prime example of this through its latest policy pronouncements in *Completing the Transition*, toward becoming a different type of international development agency: brokering knowledge, advocating positions, convening and managing development initiatives (IDRC 1995:9,14).

This *building of systems and networks in furtherance of appropriate S&T* continues to be expressed as the means for IDRC to pursue its mission (IDRC 1995:3), although it is uncertain what the operationalization of this will be. These are times of limited resources and a new organizational structure tending toward shorter-focus, "cutting-edge" activities rather than longer-haul, evolutionary research agenda, and to higher priority on coordinating agendas and funding with other donors. A critical question to be asked is whether there is going to be room for the kinds of building-from-the-field through iterative, inclusive and member-owned approaches which the review suggests have been most consistent with effective networks in the past.

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Appendix 1. Commissioned Papers

As part of this review, eight papers were commissioned on various aspects of networks. These papers will be published by the Evaluation Unit of IDRC in 1996 as a set of background papers. A summary of the key points in each paper is included here. The summaries have been developed primarily using text from the papers themselves. The full paper should be referred to for further details.

The papers may be obtained through the Evaluation Unit.

Authors of Commissioned Papers

Phillip English, formerly with IDRC, is a consultant based in Washington, D.C.

Andrea Goldsmith was an intern with the Evaluation Unit at IDRC.

Yussuf Kassam is an independent consultant in international development, based in Toronto.

Jean Michaud is an independent consultant based in Quebec city.

Rachel V. Polestico is Director of the Appropriate Technology Centre and Assistant Director of the South East Asia Rural Social Leadership Institute, both at Xavier University in Cagayan de Oro City, the Philippines.

Nancy Smyth is an independent consultant based in Johannesburg.

Rajesh Tandon is Executive Director of PRIA (Participatory Research in Asia) based in New Delhi.

Edward J. Weber is an independent consultant based in Ottawa.

Phillip English

Governance Structures of Networks in Sub-Saharan Africa

This paper analyzes the governance structures of seven capacity-building networks in sub-Saharan Africa: The African Economic Research Consortium (AERC); the Industrial Policy Network (le Réseau); The African Technology Policy Studies Network (ATPS); the Educational Research Network for Eastern and Southern Africa (ERNESA); the Education Research Network for West and Central Africa (ERNWACA/ROCARE); the Municipal Development Program (MDP); and the Environmental Economics Network for Eastern and Southern Africa (EENESA).

Key conclusions reached in this review are:

1. The easiest way to initiate a new or revamped network may be for a technically competent official from the donor to take on the role of coordinator and to get things going in-house before bringing in other donors. He or she is likely to have the necessary combination of skills, and the confidence of the principal funding sources, at a time when new donors will be reluctant to take an active role.
2. Any long-term network to build research capacity in Africa probably requires a minimum critical mass, including a full-time coordinator, to make a real difference. The prevailing incentive structure is not sufficient to motivate either researchers or the coordinator to take a sustained interest in a "part-time network."
3. One should hire the strongest possible coordinator and be prepared to pay a competitive price. The position is very demanding, and the success of the network depends more than anything else on this individual. The ideal candidate has both scientific and administrative experience and is one who can compete on the international labour market. However, the salary level can be reduced somewhat by offering as much autonomy as possible in a supportive governance structure.
4. Housing network secretariats within IDRC's regional offices has not worked as well as locating them in separate institutions. Some changes may be required if the Centre wishes to pursue this mechanism. More authority may have to be delegated to the secretariat and the governing board or steering committee.
5. Coordinators must have a clear understanding of their reporting relationship. Divided loyalties must be avoided.
6. The creation of a separate scientific committee probably represents the final stage of delegation by donors. Before networks can set up well-functioning scientific committees, they need a strong secretariat, a well-defined program that enjoys broad consensus, and a well-respected group of African and non-African specialists on the scientific committee.

7. When one donor does not start things off on its own, an all-inclusive steering committee may be the best way to establish a consensus between the different sponsors and technical specialists on broad objectives and modalities.
8. Steering committees may offer a good compromise on the scientific front in the short run because they allow donors to participate in scientific decision-making until they gain sufficient confidence in the coordinator and technical advisors. However, donors must be careful not to impose their will on the steering committee, and the executing agency must not undermine its decisions in subsequent actions.
9. The need for administrative and financial support is substantial, often under-estimated, and probably most effectively addressed through a management committee. Steering committee meetings tend to be too large and infrequent to deal effectively with such problems. The tendency to leave these for the donor-executing agency to resolve has not worked very well. A management committee reporting to the full steering committee helps establish more of an arm's length relationship with the executing agency and better respects the quasi-independent character of the network.
10. It is more difficult to build a participatory, demand-driven network because there are two different reporting relationships for the coordinator. A balance must be struck between the aspirations of the membership and the exigencies of the donor agency. If the aspirations of the members take precedence, the agency is likely to minimize its financial commitment and confine the network to a part-time coordinator and few financial incentives. Greater donor commitment tends to create tensions and frustrations elsewhere.
11. Although well chosen policymakers are a useful addition to every network governance structure, it is the choice of coordinator that is likely to have the greatest impact on policy orientation. Coordinators from the region they serve appear to be more prone to emphasize policy relevance.
12. The importance of governance structures is underestimated.
13. Once a network has an effective system of governing committees in place, the lead donor agency must step back and learn to work through that system. This is a critical component of capacity-building.
14. AERC represents a successful model. Although its circumstances may have been special, other networks would do well to understand its approach and adopt relevant aspect.
15. Ultimately, personalities matter most. If mutual respect and the will to cooperate are there, various governance structures can probably work. If not, then a series of well-functioning committees may be the only way to overcome personality clashes.

Andrea Goldsmith

Research Networks: Tools for Development

In a review of thirty files of network projects supported by IDRC, this paper summarizes some key issues in network design and implementation. The review indicates that the fundamental problems and issues that networks try to address, such as a weak research environment, apply to most networks in most contexts. The broad functions that networks serve are overarching — they apply in many contexts and situations and are relevant to all, or most, kinds of research. As such, the collaborative or sharing function that networks serve are as important in a highly integrated joint research network as in a more decentralized information service network.

Although it can be true that collaboration and a broader scope can bring about much greater impacts, it can also become a convenient excuse for establishing networks without considering the alternatives. Smaller, more focused or localized projects can also have important effects. Networks tend to be big and try to address all problems at once. After due consideration, the network alternative might still emerge as the right way to proceed, but there must be a consideration that it is not the only way to proceed.

One aspect of networks that we must treat with caution is their training or capacity-building function. Faced with indigenous weaknesses in this area, internationally funded research networks may respond with the creation of alternative or parallel opportunities for education and training. It is crucial that these not supersede, but rather that they enhance, existing indigenous systems and structures, such as national universities.

The primary objectives of networks are outlined as follows:

1. **Networking** Although somewhat tautological, often a key objective of a network is the process of networking.
2. **Information exchange** Although a necessary component of network activity, it is in the use of the information that its role in networking is crucial.
3. **Research/knowledge creation** Collaborative research in a network context is advantageous as it provides a larger or more diverse study base, comparability of data sets and results, and a greater range of experience or perspective among researchers.
4. **Capacity building** For many networks, capacity building is the primary objective.

Most networks function along similar patterns: with advisory and executive bodies; a general assembly of members; workshops and conferences for training purposes; information exchange and research dissemination; and disbursement of research funds. Two key issues are the nature of membership, and the type of coordination in networks.

1. **Membership** The basic unit of a network is its members. It is this core group of participants around which the network revolves, and for whom its main activities are designed. A network's membership base can be institutional; individuals representing institutions; individuals acting in their own capacity; or a combination of these types of membership. Whether the membership and the client group are one and the same will depend on the reach of the network. For example, a network whose primary objective is training will have a limited reach; its client group will essentially be its members. However, most research-for-development networks have an ultimate intended beneficiary that extends far beyond its membership to include disadvantaged or other target groups, as well as an influence on policy through a decision-making audience. In a "network of networks," the membership of a regional network is composed of the national and local level networks or associations.

A crucial aspect of network membership is to involve decision-makers directly in network activities, so that from the outset policy considerations are taken into account. Policymakers are much more likely to take heed of recommendations they have had a hand in defining.

2. **Coordination** In theory, the coordinator implements the wishes and decisions of network members as articulated through the steering committee or other advisory body. In reality, it is often the coordinator who holds the whole thing together through sheer dynamism and charisma. For this reason, the choice of the coordinator is crucial; this choice can be the defining factor in the success or failure of a network, both internally and externally.

Research networks are expensive to establish and maintain. The donor's investment must be justified, but the commitment of national support must also be ensured. This is both to ensure the long-term viability of a process that will not continue to receive outside support and to recognize that external efforts will never be recognized or utilized as fully as those that come from within. Indigenous involvement and participation are imperative for a network.

Yussuf Kassam

Partnership in NGO Networks

Networking in development work is based on a social phenomenon that involves sharing and working together on common issues and for the mutual benefit of all members. Networking among NGOs builds relationships around their struggles with social and development issues. The concept of partnership represents a key development paradigm in North-South cooperation among NGOs.

The notion of partnership is inherent in effective and successful networking. Understanding this concept helps identify the conditions that are necessary for effective networks, particularly in international networks that involve NGOs in the South and in the North. Such networks are vulnerable to unequal power relations that may lead to domination by northern organizations, and to a lack of mutual accountability within the network.

Two factors account for the emergence of the concept of partnership: the recognition of the unequal distribution of resources between the developed and developing worlds; and the potential for northern organizations, particularly those that provide institutional and project funding, to define and guide the development agenda.

This paper proposes five main elements in the effective functioning of North-South networks:

1. **Compatibility:** The act of networking implies an underlying sense of solidarity among members. However, when the notion of solidarity is explicitly stated as a guiding principle by member organizations, the resulting relationships have a greater likelihood of fostering equitable partnerships.
2. **Means of Partnership:** The institutional strength of Southern NGOs to facilitate active and equitable participation in the network's activities, management, and leadership, is crucial to building genuine partnership and productive networking.
3. **Operational Principles:** When establishing the goals and objectives of a network, it is useful for the Northern and Southern partners to develop a written statement of the philosophy and principles of partnership.
4. **Operational Mechanism:** The establishment of a decision-making structure in which there is equal and democratic participation of the Southern partners in the management of activities is perhaps the most critical element for equality in networking partnership. When networks evaluate their activities, outcomes, and impacts, that evaluation must be carried out jointly by the members.
5. **Commitment:** A long-term commitment to supporting networking activities is instrumental to building strong partnerships and to creating an environment that facilitates mutual learning and action among network members.

Jean Michaud

The Impact of Regional Development Programs on Indigenous Minorities

This review of the Regional Development and Indigenous Minorities Network in Southeast Asia (RDIMSEA) studies the impact of regional development programs on indigenous minorities in Thailand, Continental and Insular Malaysia, and the Philippines. RDIMSEA was an externally conceived network that grouped NGOs, academics, and a coordinating office. The RDIMSEA network had a difficult and troubled existence from the start. A major source of confusion was an early change in key personnel. The main initiators of the network quit and were hastily replaced by individuals with no previous working relationship. This was likely the most important factor in the subsequent problems that were experienced. The project was concerned with the participation of representatives of indigenous minorities and attempted to involve researchers who were themselves members of the minority groups. Efforts to recruit membership from minority groups met with limitations of language, insufficient levels of education, absence of administrative and political structures with which to work, and generally low interest in the venture. It is likely that the initial motivation for many participants was primarily their own interests. When questioned about taking part in this network, none expressed any excitement about actively cooperating with other components of the network. Because this network was not internally grown, it did not receive the necessary push from enthusiastic recipients to become an operational and durable network.

The regional nature of the project also presented some problems. Linguistic, cultural, religious, political, and economic differences existed between the researchers and the minority groups and an important cultural gap existed between the members themselves. The network wrongly assumed that organizations studying similar people were similar. Networks imply that groups must work with each other. The wider the gap between participants, the more difficult the building of cohesiveness, and the more likely the development of opposition.

Major conclusions and recommendations of the study include:

1. The project failed to define a specific role for the coordinator of the network.
2. There was a lack of common understanding about how the network should operate, a lack of transparency, and there was competition with the donor.
3. A focus on a single ecoregion, or on groups with closer cultural identity, would have been helpful.
4. Active participation of indigenous minorities in the research process and in decision-making could have been more clearly addressed in the project.
5. A mix of institutions in the same project requires a genuine mutual understanding of basic similarities and differences between components and requires discussion between participants.
6. If networks are to reduce workload among participants, instead of increasing it, this may only occur after a certain amount of time is invested by the participants. Fragile organizations may not

have the necessary "energy capital" to be able to wait for the intended results. The network mechanism therefore must be developed in close conjunction with the realities of its prospective members.

7. Coordination is always a key issue in a network. A lack of coordination was singled out as the main reason for the collapse of the project.
8. At the earliest stages of discussion, all potential participants should have an opportunity to meet and express their motivations and expectations. Donor representatives should take the initiative to discuss with all participants.
9. Two key questions were not addressed when the network was conceived:
What is the utility of networking as a specific form of action in this context?
What is the operational value of a concept such as "indigenous minorities" in Southeast Asia?

Rachel V. Polestico

Development Through Networks: The Case of CIPS in the Philippines

The PhilDHRRA (Philippines Development of Human Resources in Rural Areas) network was started in 1984 with 32 founding members. Ten years later it included over 70 secondary level NGOs serving grassroots communities throughout the Philippines. PhilDHRRA operates as a proactive NGO network, which demands the synthesis and synergy of many perspectives to create a vision of a desirable future. The network facilitates this process by connecting people with different views, and organizations with different expertise. PhilDHRRA used this mechanism to define its people-centred philosophy of development and to develop its programs for agrarian reform, rural development, people's participation, provision of social services, the environment, industrialization, gender, peace initiatives, foreign relations, sovereignty, and cultural integrity. The main objectives of this project were to help various communities solve specific self-identified problems through the use of a participatory research and planning system and to provide the NGO community with an opportunity to develop appropriate participatory research models, through CIPS, the community information planning system.

The experience of PhilDHRRA with CIPS has shown that the sequence of community integration, consultation, planning, consultation, project implementation, and constant evaluation and reflection, can be easily adopted by NGOs and communities. The PhilDHRRA network offered the infrastructure necessary for the exchange of information and services among members and a wider audience, and in so doing, promoted a wider spread of influence and a broader base for the generation of ideas and action. Key issues in implementation of this approach were identified as:

1. **Coordination** The essence of a network is coordination of the efforts of different members.
2. **Flow of Information** The network used its newsletter, radio systems, and regular mail, but found it more effective and less expensive to relay information through its regional offices.
3. **Leadership** An elected board provided ideological and visionary leadership.
4. **Efficiency** The efficiency of the flow of information and services within the network was facilitated because existing linkages could be used.
5. **Funding** The management of funds was entrusted to the network; funds came from a range of donor and community sources.
6. **Sustainability** Each network activity is used to strengthen the network and to institutionalize the skills in its membership.
7. **Spin-offs** The CIPS generated spin-offs because of the linkages of PhilDHRRA with other national and international groups. Some of the project spin-offs were made possible because of the effort and influence of the participating NGOs.

8. **Networks and Model Building** In modelling work, the influence of a network is very important. For the model to be widely applicable, it should be able to capture various experiences in development efforts.

The review of the CIPS network recommends funding priorities to make a network a focal point for research:

1. Funding is needed to initiate a gathering of potential partner NGOs.
2. The funding organization and the network should work as partners in the project.
3. Funds must be provided for administrative activities of the network as well as for documentation, information dissemination, travel, communication, and staff development.
4. Where possible, the network and funding organization should seek additional sources of funding and explore piggy-backing on other projects as new priorities emerge.
5. There should be provision not only for network-level activities but also for micro projects.
6. Provision should be made for post-project activities.
7. Funded research fellowships to encourage the exploration of ideas that emerge from the network research should be encouraged.

Nancy Smyth

Networking of Parliaments in the South

Research and information networks have traditionally been associated with academia, research centres, bureaucracies, and NGOs. Rarely have parliaments been considered as a setting for establishing and supporting networks. In the mid-1990s, an initiative to establish a research and information network in selected countries of Southern Africa began. As projects start to strengthen legislatures in the South, their success in promoting democratic development can be analyzed. Because of the changing nature of parliamentary membership, their sustainability in improving the institutional capacity of parliaments, rather than individual MPs, can also be assessed.

Particularly for official government donors and those associated with the UN, the notion of supporting a network to strengthen parliamentary institutions and their operating structures across party lines may be a less political, and therefore more attractive, form of legislative development. As a mechanism that seeks to be cost-effective while maximizing and pooling existing resources, support for a network might be similarly attractive in times of declining donor funds.

The main findings addressed in the study include:

1. A network cannot be all things to all people, and experience suggests that a network must meet the needs of MPs, not create, change, or predetermine, their needs. A preference has also been expressed for a network that allows for interaction among information providers and between MPs and regional experts.
2. MPs cannot spend much of their time on the definition or running of a network; however, ideas and issues cannot be forced on them. MPs expressed reservations about a network solving all of their information and research needs.
3. A network created to provide information and research for MPs would be sustainable only to the extent that the information it provided was relevant to the needs of its users. A challenge for a network in a parliamentary setting is the anticipated turnover of its end-users on a regular basis.
4. MPs envision a series of networks or networking opportunities. Rather than hoping to achieve several objectives through one all-encompassing network, a series of networks or networking opportunities that meet more defined goals might be considered.
5. Networks in a parliamentary setting require a high degree of flexibility and must be able to accommodate changes in membership and policy.
6. Flexibility in management might be achieved through rotating membership and the involvement of outsiders. A network centre or secretariat could provide some degree of continuity during political change.

7. Once agreement has been established for a network, this should be formally endorsed by each of the participating parliaments. The development of a long-term, realistic timetable should be clearly laid out.
8. Experience suggests that involvement must take place at an early stage by senior MPs and staff.
9. Although it might be attractive from a resource and efficiency point-of-view, Southern parliaments often lack the basic infrastructure, such as computers and modems, to put an electronic information network in place.
10. To the extent that MPs in Southern Africa began to define what a regional network might look like, the option of face-to-face networking was given priority because most MPs value personal interaction and do not have experience in exchanging information electronically.
11. The network would place priority on strengthening existing research units and libraries, and on noncomputer access to information. Electronic information systems would be introduced later.
12. Linking the network into existing parliamentary libraries and research units was stressed. Balanced sources of information from outside institutes, NGOs, and other elements of civil society were also sought to represent varying political and social views within the region.
13. Networks require some structure and management. Committees may provide some of this structure, as will the topics selected for coverage. However, it must be accepted that the networking activities will require a diffused and flexible management structure. MPs have been clear in acknowledging that any management structure must involve parliamentarians, staff members, and a balanced mix of outside information providers.
14. Some parliamentary staff see a network as a way to raise the interest of MPs in information and research. Some MPs have cautioned, however, that researchers and academics may insult MPs by insisting that they are not making appropriate use of information.
15. Membership should be defined by the members themselves and there must be an acceptance from the beginning of varying degrees of participation.
16. Membership in a network that crosses national borders must be based on some degree of commonality.
17. The onus is on those who are closest to parliaments to provide an enabling environment for MPs. This should include a commitment to fund some start-up and operational costs associated with the network.
18. Legislative development must be seen as a constantly evolving process that will be subject to short-term ups and downs as political and economic developments occur. Donors need to realize that a longer timeframe may be required to start a project and to see it through.

Rajesh Tandon

Networks as Mechanisms of Communications and Influence

The concept of people-centred development is central to an understanding of networks. The various actors in civil society must communicate with each other, and the horizontal exchange of information and ideas can be facilitated through a network. The rationale of a network is to promote people-centred development by allowing civil society to share experience and take joint action. Networks allow individuals, groups, and organizations that want to communicate with each other to pursue some common development agenda without surrendering autonomy. Networks can also serve as a mechanism of influence through the sharing of information, ideas, and experiences. This influence extends not only to civil society, but to the institutions of the state and the market. Networks are distinct from other forms of organization such as formal membership associations and umbrella organizations. Formal representation is not necessary in a network.

Four main purposes for networks are identified:

1. **To communicate** among actors in civil society;
2. **To mobilize energy** and resources as new ideas, designs, and perspectives are shared among interested groups;
3. **To build linkages** among actors in civil society by bringing together like-minded individuals, groups, and institutions around a shared development agenda; and
4. **To influence** public policy through shared analysis and vision among various actors in civil society.

This paper analyzes how to make networks more effective as mechanisms of communication and influence, around six core problématiques:

1. **Participation versus responsibility** A balance between participation in, and responsibility for, the network must be promoted among its members. The more widely shared the responsibility for network direction, the more sustainable the network.
2. **Coordination versus control** The purpose of coordination is to ensure the promotion of communication, not to control the activities of those who are part of the network. Those who associate with the network remain autonomous.
3. **Links between the person and the institution** The key is to ensure that individuals are as active as institutions in networks. Institutional bases are critical for a network, but these institutions must respect the autonomy, informality, and space that the individuals in a network require to be able to effectively serve the mandates of the network.
4. **Information versus action** There is an important distinction between solidarity and action. Although solidarity can be responded to by many members of the network, action requires the commitment of institutions to undertake follow-up programs.

5. **Focus versus inclusion** Focus allows a network to influence public policy more coherently; inclusive networks disseminate ideas and experiences more widely.
6. **Process versus structure** A certain amount of structure is necessary for continuity and accomplishment of purpose, but this structure must not curtail the evolution of the processes.

Edward J. Weber

Electronic Networking and Development

Electronic networks are evolving very rapidly as individuals and institutions become aware of what they can offer and as the companies involved in developing and installing facilities promote their products. Mostly missing in the glowing reports on what is possible with the technology, is concern for implications in less privileged regions and communities of both North and South — the city slums and remote rural areas with little to attract investment in new services. Most of the argument is being driven by those hypnotized by the technology. Electronic networks could prove seriously damaging to world social and economic stability if they are only used to entrench structures linked to dominant power groups and cultural attitudes in both North and South. Development depends on empowerment of the disenfranchised to allow them to take fuller charge of their own situations. Means must be created to make the tools for development accessible to poor communities.

An experiment undertaken in Africa to facilitate improved health services and information in various countries, known as **Healthnet**, illustrates some of the potential as well as the difficulties. The purpose of Healthnet is to facilitate the delivery of health services, the collection of health information, and the education of health workers. The Healthnet initiative is based on a fully owned and operated microsatellite that communicates with relatively inexpensive earth stations (approximately \$5000) in fourteen African countries. The network acts as a postbox that gathers and forwards messages to appropriate information sources, and distributes responses. The experiences of Healthnet have been positive overall, and demonstrates the potential for the broad use of this service. Health literature is being disseminated to a wide range of users and the exchange of technical and management information related to health care and treatment is growing substantially.

Problems have been both technical and human. Technically, telephone lines and sources of electrical power have not always been available; licensing authorities are not always amenable to allowing a system that bypasses the national systems; equipment needs to be properly sited for protection as well as for good reception and transmission; and some of the equipment cannot be serviced locally. The human problems have also been a factor: the user community is usually unaware of the potential benefits, and so uptake can be slow; the people involved are not used to frequent and rapid communications, and are not familiar with computer systems so may be intimidated by the technology; and donors need to be convinced of the priority of providing timely and accurate information on site.

The issues encountered in the implementation of Healthnet are manifest in a number of other initiatives as well. Among the key overall problems that are encountered in the establishment of electronic networks are:

1. The **identification of national nodal institutions** has encountered various technical and organizational difficulties. An institution must be willing to support a broad base of users that includes researchers, information network institutions, private-sector entities, NGOs, project implementors, individuals, and government institutions.

2. **The lack of skilled personnel** to install communications equipment, insufficient mastery of communications software, unavailability of direct telephone lines, poor operations and maintenance of what equipment there is, management and administrative problems, inability to procure vital parts, and theft of equipment, are all ongoing problems which must be faced.
3. **More than half the people in the world have no access to the telephone network** through which much of the new information exchange takes place; and large numbers of these people are illiterate. Although great advances are being made in many communities, global division is being accelerated between the information-rich and the information-poor, between the North and the South, urban and rural, male and female, educated and uneducated.
4. It is not always clear at the early stages of a technology's intrusion into a culture **who will gain or lose more**. The debate will go on for some time and the outcome will be determined by arguments on both sides and by the evolution of new ways of communication and organization that meet society's needs.
5. Indigenous knowledge is dynamic, not static. That is not to say that indigenous knowledge is superior; it is often lacking in important elements; but neither should it be viewed as inferior. It reflects what people know from their experience and forms the basis on which improvements can be built. **Knowledge is developed through both indigenous and exogenous channels** of communication. Electronic communication can influence how interactions take place and the degree to which the exogenous dominates the indigenous. Indigenous technical knowledge has rarely influenced the international information system, although this is beginning to change. A major issue is who owns and controls that knowledge. Development depends on a melding of both indigenous and exogenous knowledge and information.
6. The world of **electronic networking and its potential are currently in their infancy**. Although much has already been accomplished, the limits of existing technology and its application have not been nearly reached, and new advances are on the horizon.
7. Concerns about the potential for a computer-based communication system to create **an underclass excluded from the benefits of a new system** need to be taken seriously. There is no clear solution to these threats aside from adapting the new tools to the special needs of the threatened groups. The potential to build on and enhance the worth of local knowledge and cultures can be enhanced if electronic systems are adapted to that purpose and if they promote local control. This will take imagination, commitment, and effort.
8. **Collaboration and communication are essential** to realize the potentials of electronic networks. The electronic tools that are now available make it possible for ordinary people, scientists, concerned citizens and educators to network in order to provide services, confront problems and access information. Although there are serious negative implications to the ways electronic networks are currently being promoted, these can be overcome if services are provided that people really want and need and that lead to well-rounded development and human well-being.

Appendix 2. Interviewees

Africa

Titus Adeboye	African Technology Policy Studies Network (ATPS)
Tade Akin Aina	Council for the Development of Social Science Research in Africa (CODESRIA)
Lalla Ben-Barka	Réseau Occidentale/Centrale d'Afrique pour le Recherche en Éducation (ROCARE)
Nejib Bousselmi	Réseau de politiques industrielles
Sandra Baldwin	IDRC Nairobi
Samsen Chema	Vegetable Oils/Protein System Improvement Network
Sidiki Coulibaly	United Nations Family Planning Association (UNFPA)
Alioune Camara	IDRC Dakar
Peter Ewell	Regional Programme for Improvement of Potato Culture in Central and Eastern Africa (PRAPACE)
Cedrick Hess	Arid Lands Information Network
Cecilia Kinuthia-Njenga	Women and Natural Resource Management Network (WEDNET)
Kabiru Kinyanjui	IDRC Nairobi
Roger Kirkby	Eastern African Beans Research Network
N'guessan Jérémie Kouadio	Réseau politiques sur les langues nationales
Réal Lavergne	IDRC Dakar
Daniel Letouzé	IDRC Dakar
Charles Mbakaya	East Africa Pesticide Network
Souleymane Mboup	Réseau africain de recherche sur le SIDA
James Mbwika	Vegetable Oils/Protein System Improvement Network
Hasa Mlawa	East Africa Technology Policy Studies Network (EATPS)
Protus Muteshi	African Environmental NGO Electronic Network
Luis Navarro	IDRC Nairobi
Ruth Nduati	Network of AIDS Researchers of Eastern/Southern Africa (NARESA)
Benno Ndulu	African Economics Research Consortium (AERC)
Makau Ngola	African Environmental NGO Electronic Network
Vera Ngowi	East Africa Pesticide Network
Osita Ogbu	IDRC Nairobi
Jonathan Otto	Regional Oils Project
Frank Plummer	Network of AIDS Researchers of Eastern/Southern Africa (NARESA)
Erwin Protzen	Regional Oils Project
Anthony Rodrigues	Eastern/Southern Africa (Information) Network
Pape Léopold Sarr	West Africa Farming Systems Research Network
Ozzie Schmidt	Vegetable Oils/Protein System Improvement Network
Daniel Sifuna	Education Research Network of Kenya (ERNESA)
Ola Smith	IDRC Dakar

Habib Sy
Sibry Tapsoba

IDRC Nairobi
IDRC Dakar

Asia

Arfah Aziz
V Balasubramanian
Chantana Banpasirichote
Chin Saik Yoon
FA Bernardo
Somsak Boonyawiroj
Socrates Branzuela

Supang Chantavanich
Luzviminda Cornista
John Graham
Bob Huggan
Abu Hamid Latif
VR Mistry
Maria Ng
GP Phondke
Rachel Polestico

Amara Pongsapich
Nimal Ranaweera
TS Saraswathi
Cherla Sastry
Anil Singh
Randy Spence
Annette Stark
Rajesh Tandon
Stephen Tyler

Southeast Asia Research Review/Advisory Group (SEARRAG)
Asian Farming Systems Research Network (AFSRN)
Chulalongkorn Social Research Institute
Southbound Publications
International Rice Research Institute (IRRI)
formerly IDRC Singapore
Philippines Development of Human Resources in Rural Areas
Network (PhilDHRRA)
Thai Qualitative Research Association
Tripartite Partnership of Agrarian Reform
IDRC Singapore
International Rice Research Institute (IRRI)
Southern Education Research Initiative (SERI)
Pro-Vice-Chancellor, MS University of Baroda
IDRC Singapore
Asia Health/Environmental/Allied Databases Network
Philippines Development of Human Resources in Rural Areas
Network (PhilDHRRA)
Thai Regional Research Institutions Network
Asia Farming Systems Research Network (AFSRN)
Human Development and Family Studies Network
IDRC New Delhi/Singapore
Voluntary Action Network
IDRC Singapore
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Participatory Research in Asia (PRIA)
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Jim Butler
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World Health Organization (WHO)
NOVIB
Overseas Development Administration (ODA)
Northern Research Review and Advisory Group (NORRAG)

Rao Chelikani
Malcolm Seath
Christopher Shaw
Gill Shepherd

Education for All Network, UNESCO
Overseas Development Administration (ODA)
Donors to African Education (DAE)
Rural Development Forestry Network

Latin America

Roberto Bissio
Patricio Cariola

Instituto del Tercer Mundo (ITEM)
Red Latinoamericana de Informacion y Documentacion en Educacion (REDUC)
IDRC Montevideo
Social Policy Network
IDRC Montevideo
Centro de Investigacion y Desarrollo de la Educacion (CIDE)
Leishmaniasis Network
Latin America Animal Production Systems Network (RISPAL)
Instituto del Tercer Mundo (ITEM)
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Fay Durrant
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Magela Sigillito
Mario Torres

Middle East

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